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The Hub



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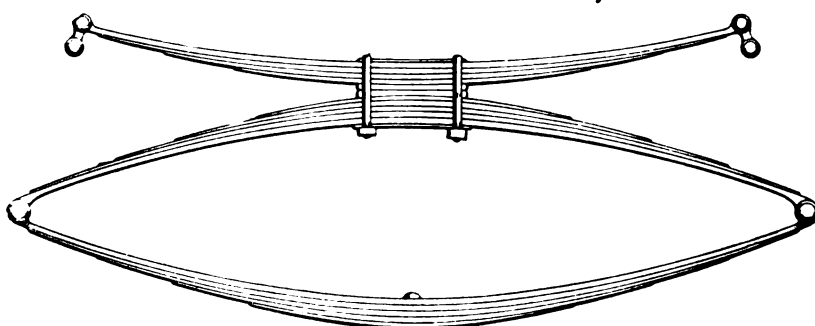
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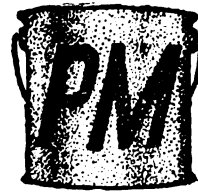
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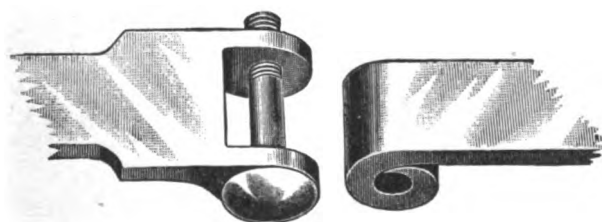
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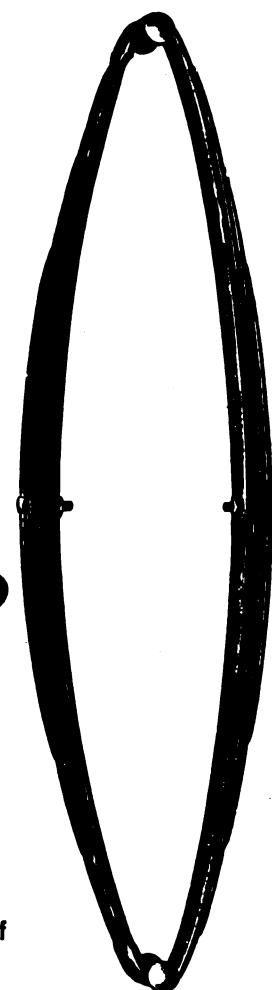
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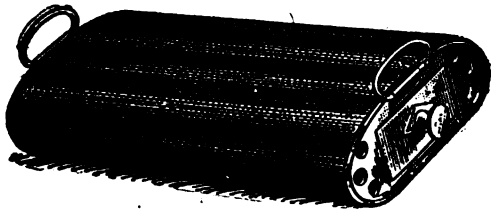
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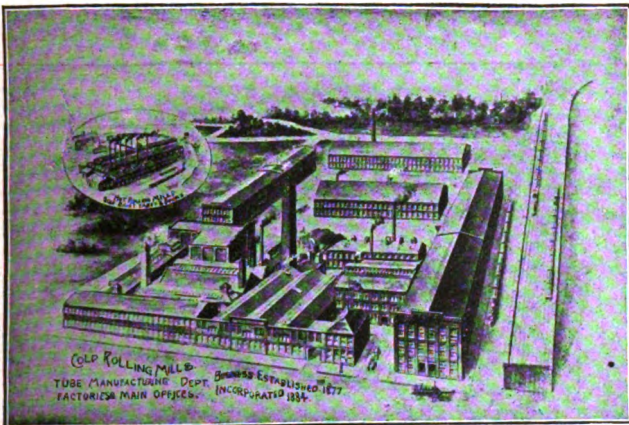
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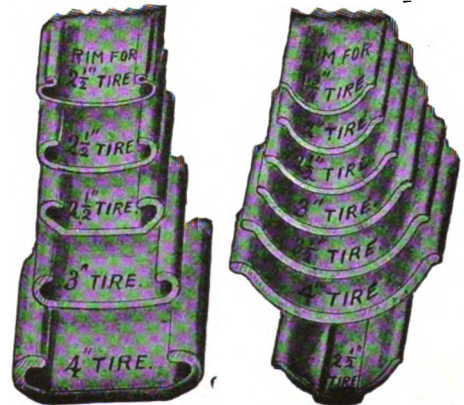
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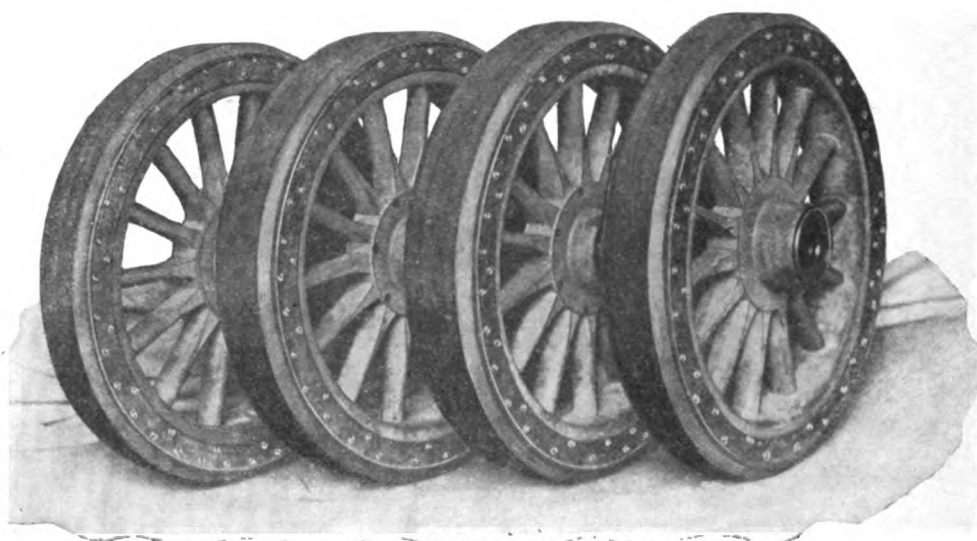
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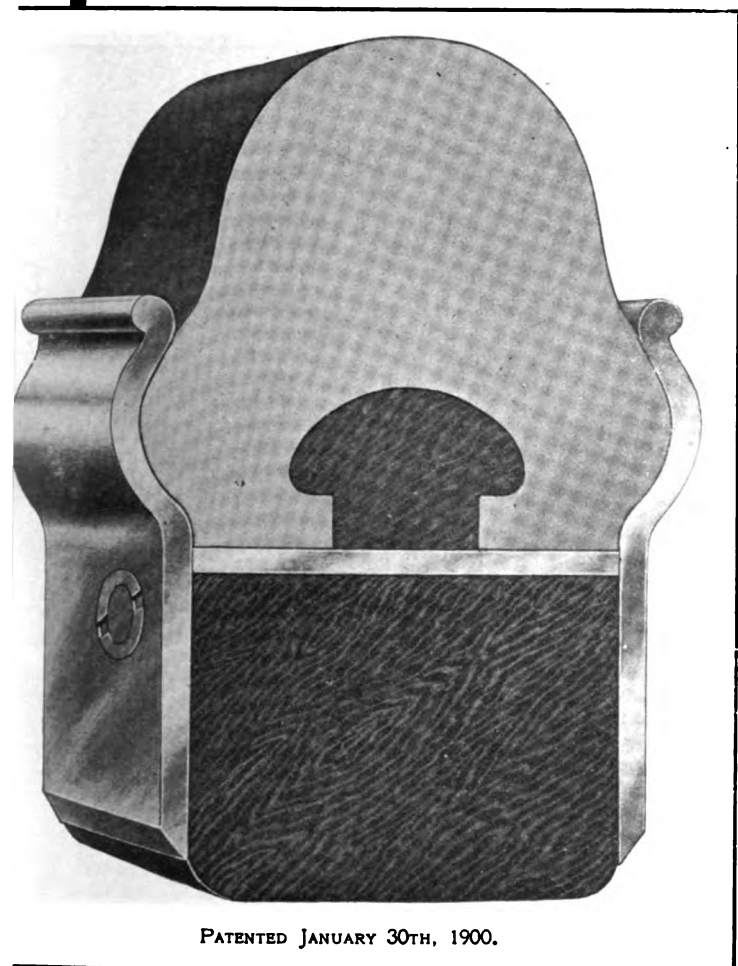
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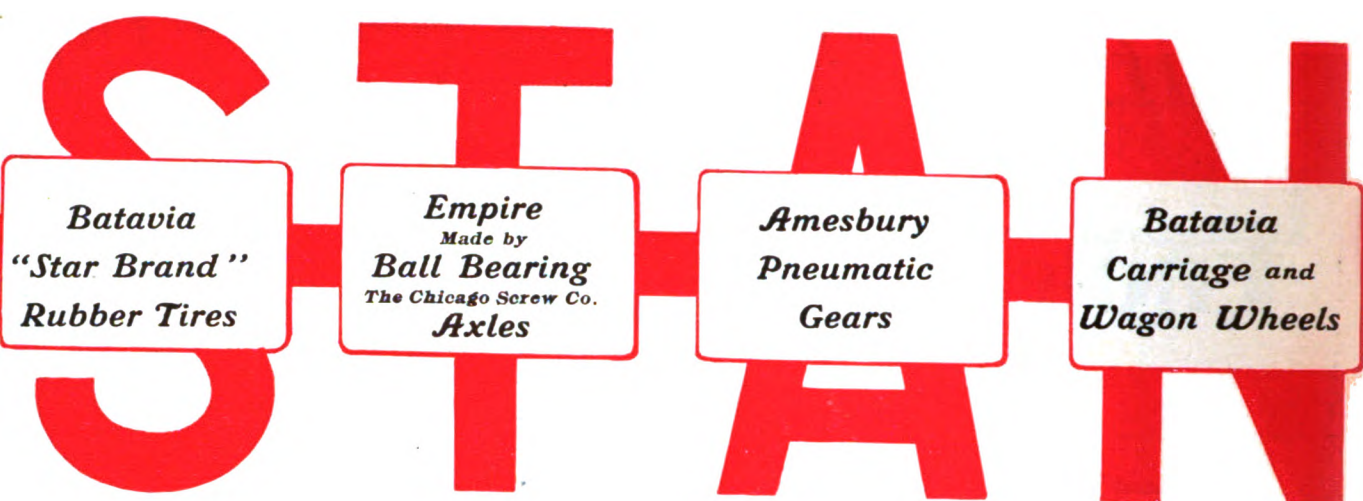
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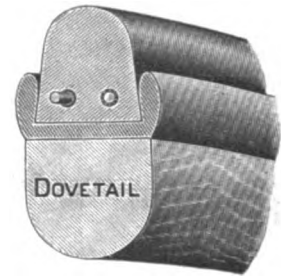
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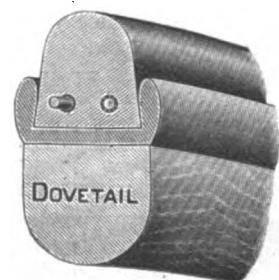
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The phenomenal growth of manufacturing interests in Chicago is attributable to its central location, contiguity to raw material, unlimited market and the superior transportation facilities it offers.

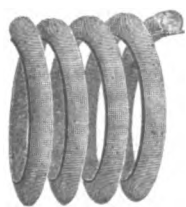
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Chicago.



FIRESTONE

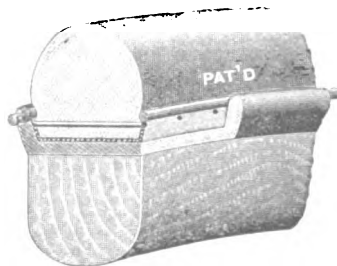
SIDE-WIRE TIRE.



The Standard of Excellence in Rubber Tires.

HAS NO CHEAP IMITATIONS.

**Solid. Molded in Coil.
Applied in Normal Condition.**



**Free from the weaknesses of
Inside Wire Tires, with points
of strength peculiar to itself.**

Will draw trade, hold trade and give satisfaction.

Write for our new booklet and sample of tire before placing your contract for the coming year.

**Firestone Tire & Rubber Co.,
AKRON, OHIO.**

**NEW YORK,
1788 Broadway.**

**BOSTON,
65 Beverly Street.**

**CHICAGO,
550 Wabash Avenue.**

**ST. LOUIS,
2212 Olive Street.**

Please mention "The Hub" when you write.

KOKOMO

TIRES

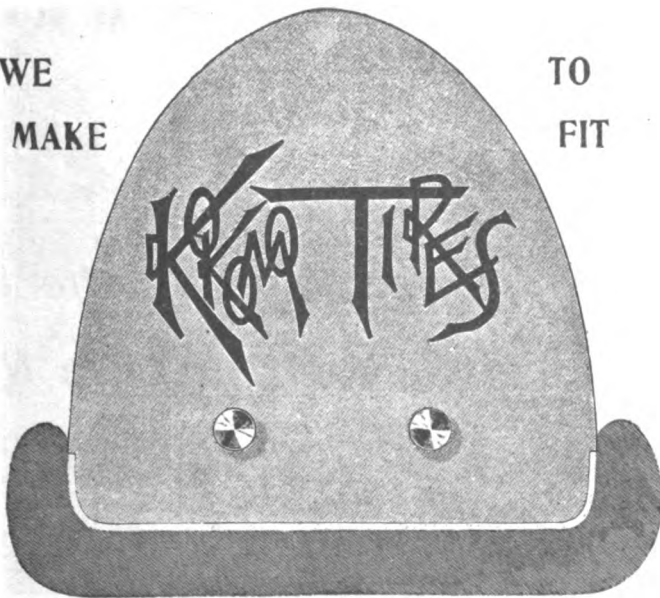
ONE QUALITY ONLY

• AND •

THAT THE BEST

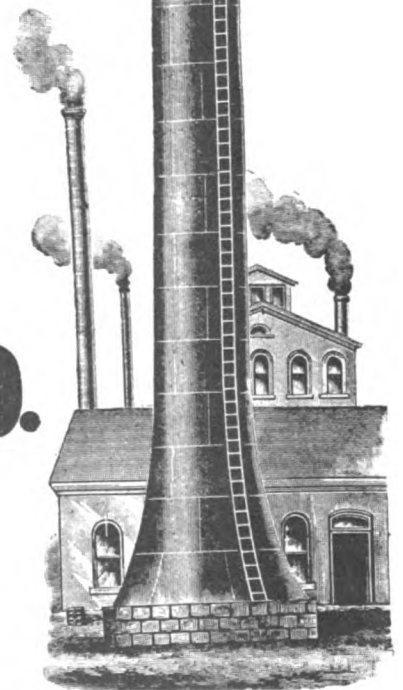
WE
MAKE

TO
FIT



KOKOMORUBBERCO.

KOKOMO, INDIANA.



Please mention "The Hub" when you write.

NOT EVEN “WINGS” CAN SAVE THEM

Read the decision of Judge Wing in the United States Court in a suit brought by the Rubber Tire Wheel Co. and the Consolidated Rubber Tire Company against the Goodyear Tire and Rubber Company of Akron, Ohio, for infringement of the Grant Patent under which the Kelly Springfield Tires are made. This is the second decision handed down by the United States Court sustaining the Grant Patents. ::: ::: ::: :::



WILL PILOT



Your product into the high-grade ranks.

It is a mark of merit—the modern equipment for vehicles of quality.

Consolidated Rubber Tire Co.,
New York and Akron, Ohio.



In 15 seconds you can change our No. 110 Top Buggy to one of the handsomest Runabouts you ever saw. For this reason, we call it

2 IN 1

The Greatest Novelty and Quickest Seller on the market, and a money maker every time.

Sterling Buggy Co.
RUSHVILLE, IND.

Watch this page next month. ➤

Please mention "The Hub" when you write.

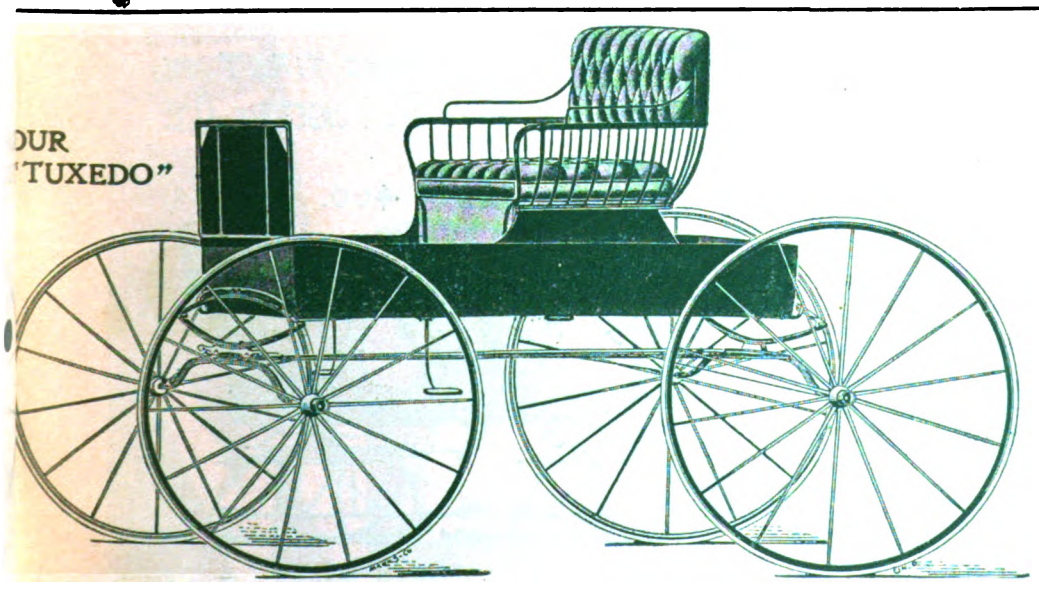


Brighten your "BRIGHTON" BUGGIES
Trade with



They are in use over the whole American continent and their fame has spread to other lands—even to far away South Africa.

We built 16,000 vehicles last season, and the contracts we are now closing indicate a larger business for 1902. Low prices and salable goods is the cause of it.



550 "Tuxedos" Sold Last Year
and Not One Complaint



THEIR FIRST YEAR



YOU CAN'T BREAK THEM



Our Catalogue and Prices Are
Well Worth Asking For

THE BRIGHTON BUGGY CO., CINCINNATI, OHIO

WATERLOO SLEIGH POINTERS

BEST VALUES

GOOD STYLES

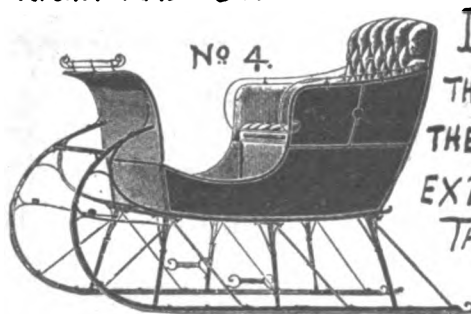
FINE FINISH • DURABILITY

WE ARE OFFERING DISCRIMINATING BUYERS THIS SEASON THE BEST SLEIGH VALUES TO BE FOUND IN THE SLEIGH MARKETS OF THE WORLD.

WE REALIZE THAT THIS IS A SWEEPING STATEMENT, BUT THE CONFIDENCE WE HAVE GAINED BY SELLING OUR SLEIGHS TO THE SAME TRADE YEAR AFTER YEAR FOR NEARLY TWENTY YEARS MAKES US WILLING TO STAND BY THE ABSOLUTE TRUTHFULNESS OF THE SAME WITHOUT ANY QUALIFICATIONS WHATEVER.

WE HAVE ON OUR LIST AS BUYERS OF OUR SLEIGHS A MAJORITY OF THE LEADING DEALERS OF THIS COUNTRY AND THEY TELL ^{US} THAT IN THEIR EXPERIENCE A DISSATISFIED USER OF A WATERLOO SLEIGH IS "A VERY RARE BIRD."

IT DOES NOT "HAPPEN SO" THAT OUR SLEIGHS LOOK RIGHT, RIDE RIGHT AND STAY RIGHT.



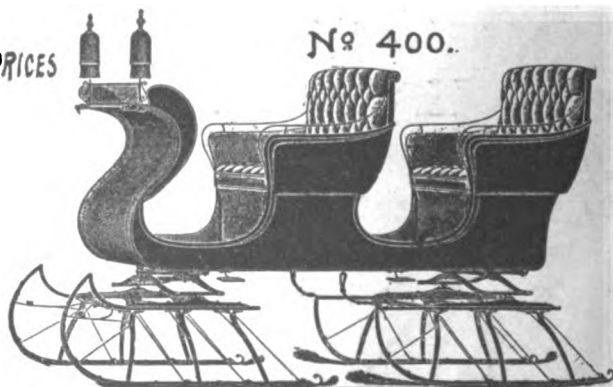
IT IS BECAUSE WE BUILD THEM ON THE OLDFASHIONED PRINCIPLE THAT IT PAYS US TO MAKE THEM RIGHT, COMBINED WITH THE KNOWLEDGE, ACQUIRED BY NEARLY TWENTY YEARS EXPERIENCE, OF HOW TO MAKE THEM RIGHT.

THERE IS NOTHING OLDFASHIONED ABOUT THE SLEIGHS EXCEPT THE OLDFASHIONED HONESTY OF THE MATERIAL AND THE WORKMANSHIP—ASIDE FROM THIS THEY ARE ENTIRELY UP-TO-DATE.

IN THE QUALITIES OF STYLE, FINISH AND PROPORTION THEY STAND FIRST AND IN THE MATTER OF EASY RIDING AND DURABILITY THEY RANK WITH "THE WONDERFUL ONE. HOSS SHAY"

CATALOGUE ON REQUEST AND LOWEST PRICES
QUOTED BONA-FIDE DEALERS

WATERLOO WAGON COMPANY LIMITED,
WATERLOO, SENECA CO., N.Y., U.S.A.



WAGON
WATERLOO
COMPANY
LTD.,

OUR TOP COMFORT



NUMBER 4 1/2.

We show above one of the best Top Sleighs built for the trade.
 Every detail of material, construction, comfort and safety is
 up to the highest standard of custom sleigh building.
 Our line of sleighs embrace all the desirable styles and grades
 from a reliable medium priced Portland to the best examples of
 the sleigh builder's art.
 Catalogue and price list mailed to dealers, in territory not
 already assigned, on request.

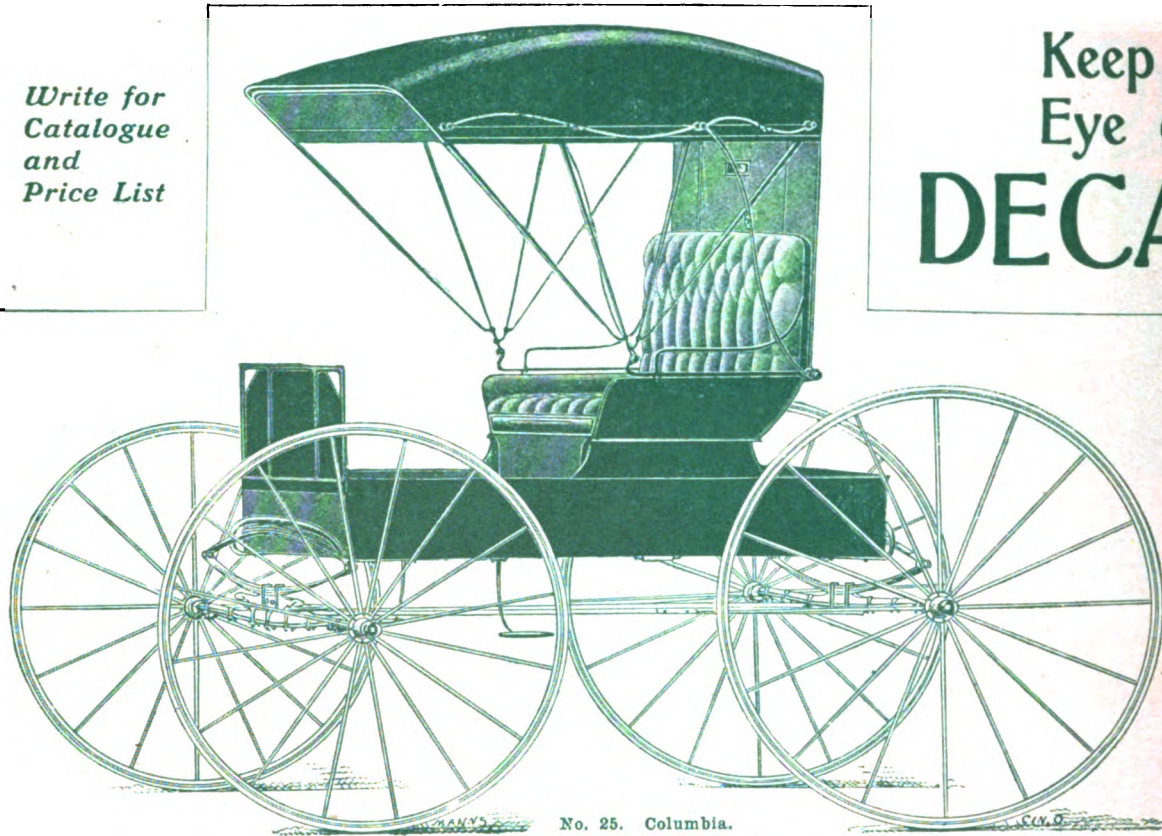
SENECA CO.
WATERLOO
N.Y.

LATE STYLES

FINE FINISH

Please mention "The Hub" when you write.

*Write for
Catalogue
and
Price List*



Keep Your
Eye on ..
DECATUR

*Get in
Line
With
the
Decatur
Buggy
Co.*

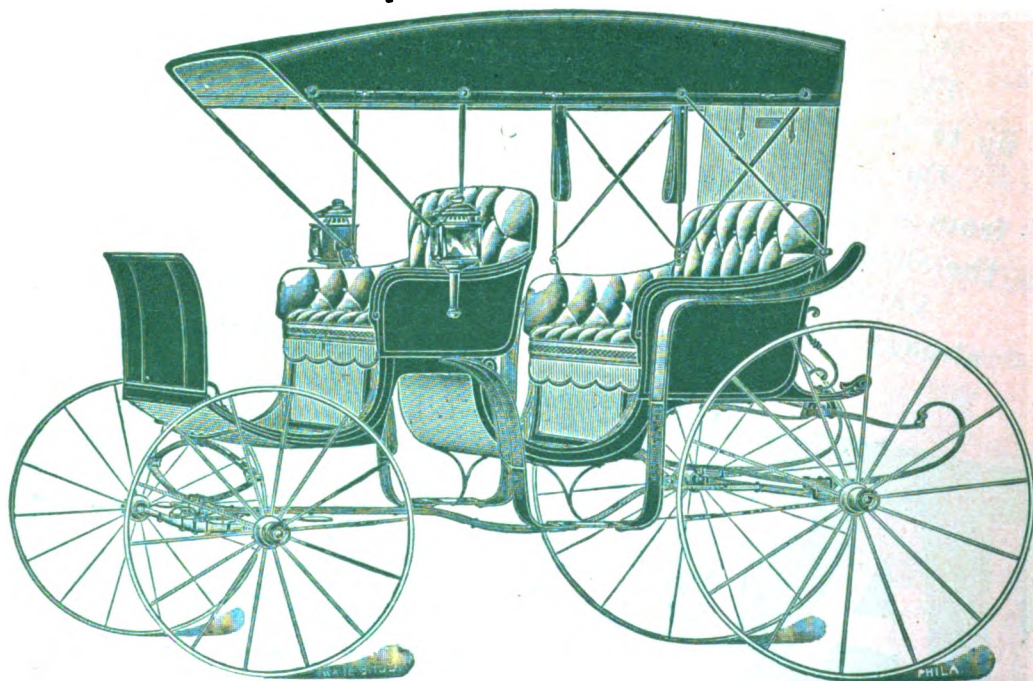
*One of
the
Winners at
Cincinnati*

DECATUR BUGGY CO.

MIDDLETOWN, OHIO.

BLEES-McVICKER CARRIAGE CO.,
Manufacturers
of **FINE VEHICLES.**

●
STYLE,
QUALITY,
WORKMAN-
SHIP.
●



No. 140 CARRIAGE.

●
It Will
Pay You to
Investigate
●
WRITE FOR
CATALOGUE.
●

===== **MACON, MISSOURI.** =====

Please mention "The Hub" when you write.



PARRY MFG. CO.

INDIANAPOLIS, IND.

Surreys, Buggies, Phaetons Fancy Drivers

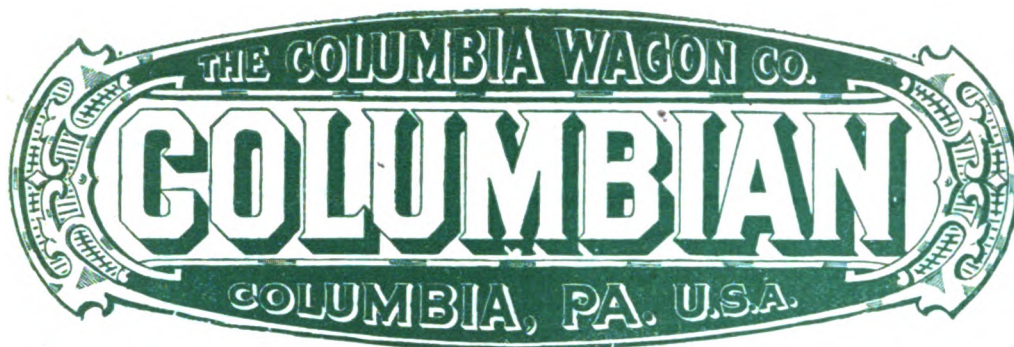
SPRING AND ROAD WAGONS

UP-TO-DATE DESIGNS

ELEGANT FINISH

ATTRACTIVE PRICES










.... 1902 CATALOGUE FOR THE ASKING



*"Next in advantage
to having the thing
to sell, is to have the
convenience to carry it
to the buyer."*

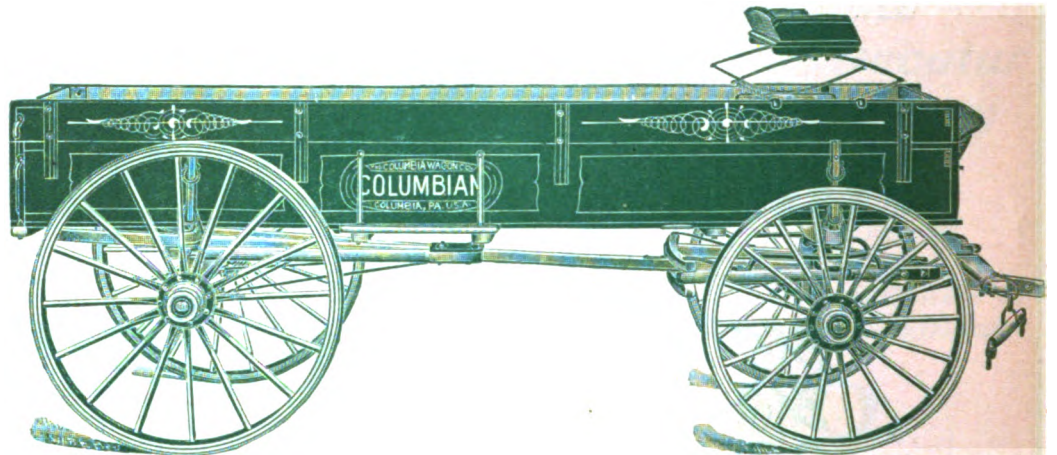
*Wm. McKinley
at Buffalo.*

BY THIS MARK YOU WILL KNOW THEM

*Our line of Farm and Road Wagons are quick sellers
and the largest money makers on the market*  
*Send for catalogue and prices and do not place your
order before looking us up*       

*Our Sarven
Patent Wheel
Farm Wagon*

*One of the many styles
we are building.*



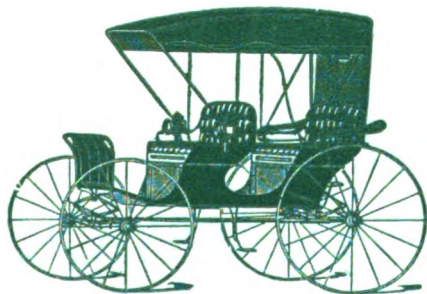
H. COOK, PRES.

F. COOK, SEC. & TREAS.

H. COOK & CO.

MANUFACTURERS OF

Surreys, Buggy Bodies,



Stick Seats, Etc.

AND ALL KINDS OF BODIES.

Court Street and McLean Avenue,

CINCINNATI, O.

LAMPS

FOR

Coaches
Landaus
Victorias
Rockaways
Traps, etc.

Very Best Hand Made

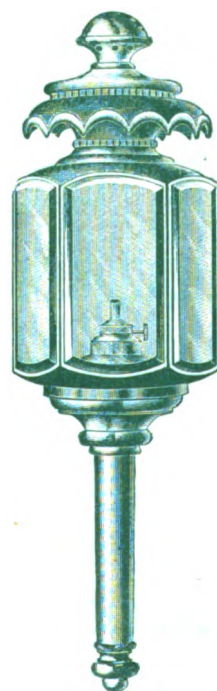
ALSO

Door Handles
Pole Crabs
Mouldings
Tips, etc.

White Manfg Co.

Hearse Lamps
Hearse Mountings

Bridgeport, Conn.



Please mention "The Hub" when you write.

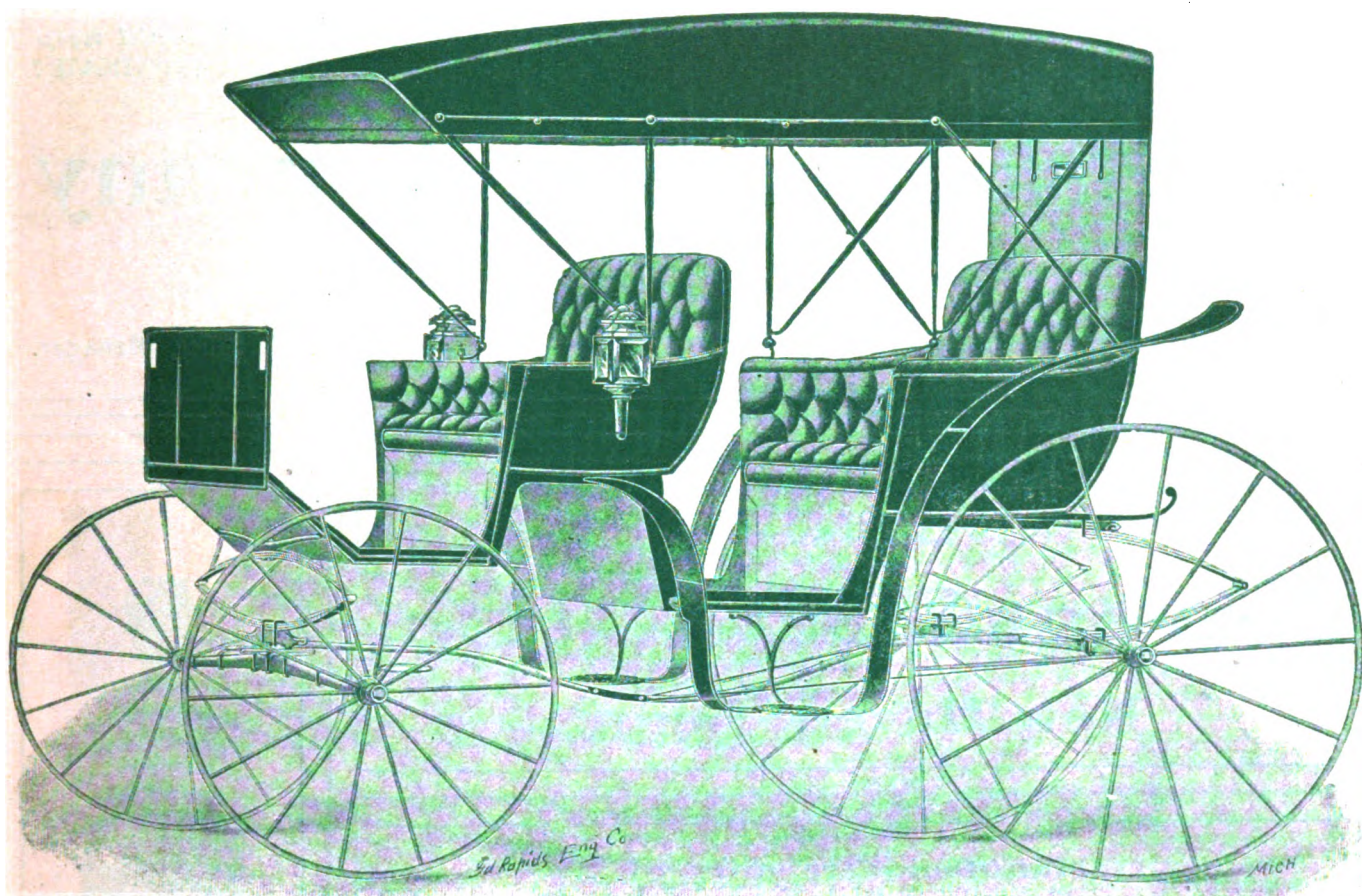
Watertown Carriage Co.

WATERTOWN, N. Y.

BUILDERS OF
HIGH-GRADE

CARRIAGES

FROM OUR OWN DESIGNS



No. 120. PRINCESS.

Many new styles are in the works, and will, we are sure, be pleasant surprises. Our new catalogue will soon be ready. Do you want one?

Watertown Carriage Co.

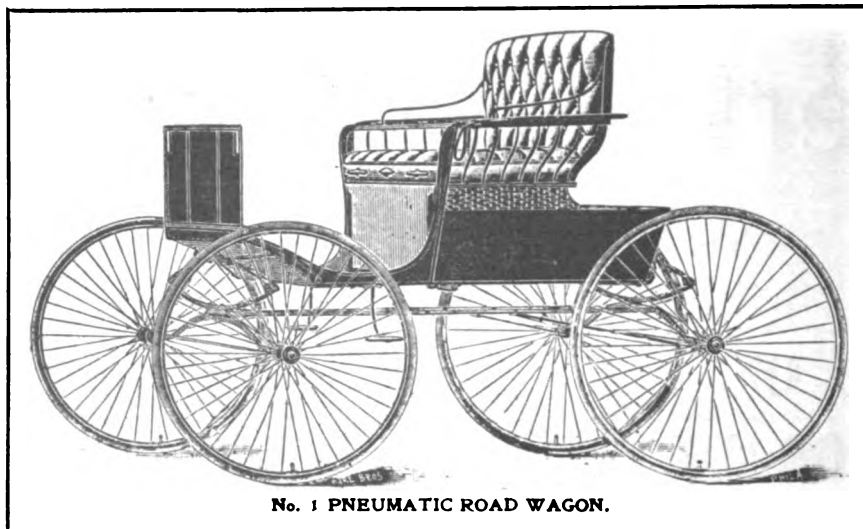
WATERTOWN, N. Y.

Please mention "The Hub" when you write.

You May Think

That you don't need our line of vehicles in your business—that you'll get just as much trade if you

don't sell Excelsior Vehicles. You may THINK that, but you don't know it. You'll never know how much business you miss by not selling Excelsior work. But, if you'll do a bit of investigating you'll convince yourself that our line is a business getter—that it will help your sales. Our work is built that way and can be depended upon. WILL YOU INVESTIGATE?



No. 1 PNEUMATIC ROAD WAGON.

A Neat, Tasty
Job and a
Corking
Good Seller.

Excelsior Carriage Company

WATERTOWN, NEW YORK.

New England Branch: WHITE RIVER JUNCTION, VT.

H. R. Miller, Manager.

....THE....

Stevens & Sackett Co.

New Haven, Conn.

Manufacturers only of

High Grade, Hand Made
Coach and Hearse
LAMPS

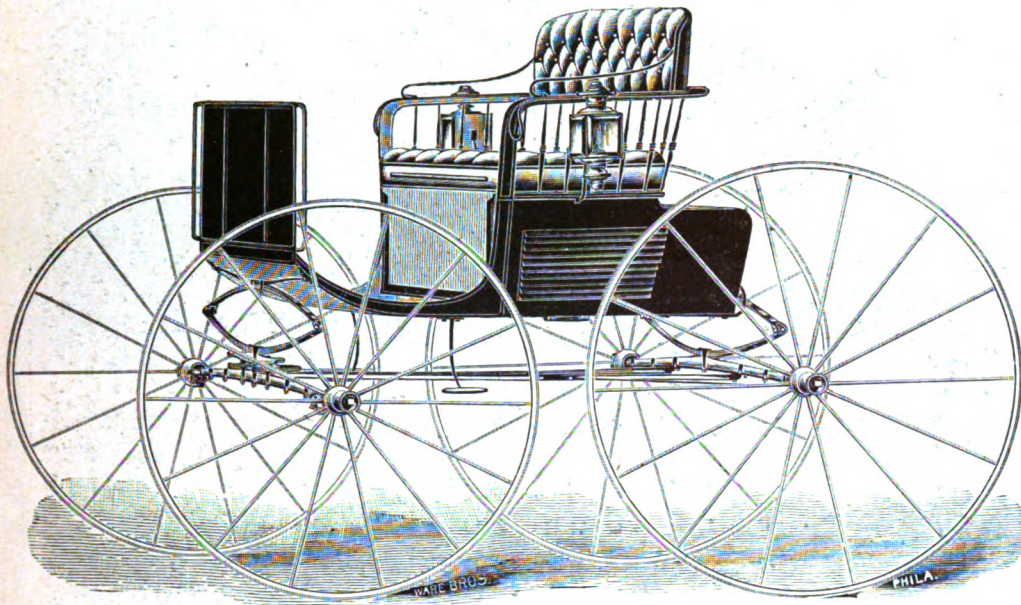
Write for Catalogue and Prices.



Please mention "The Hub" when you write.

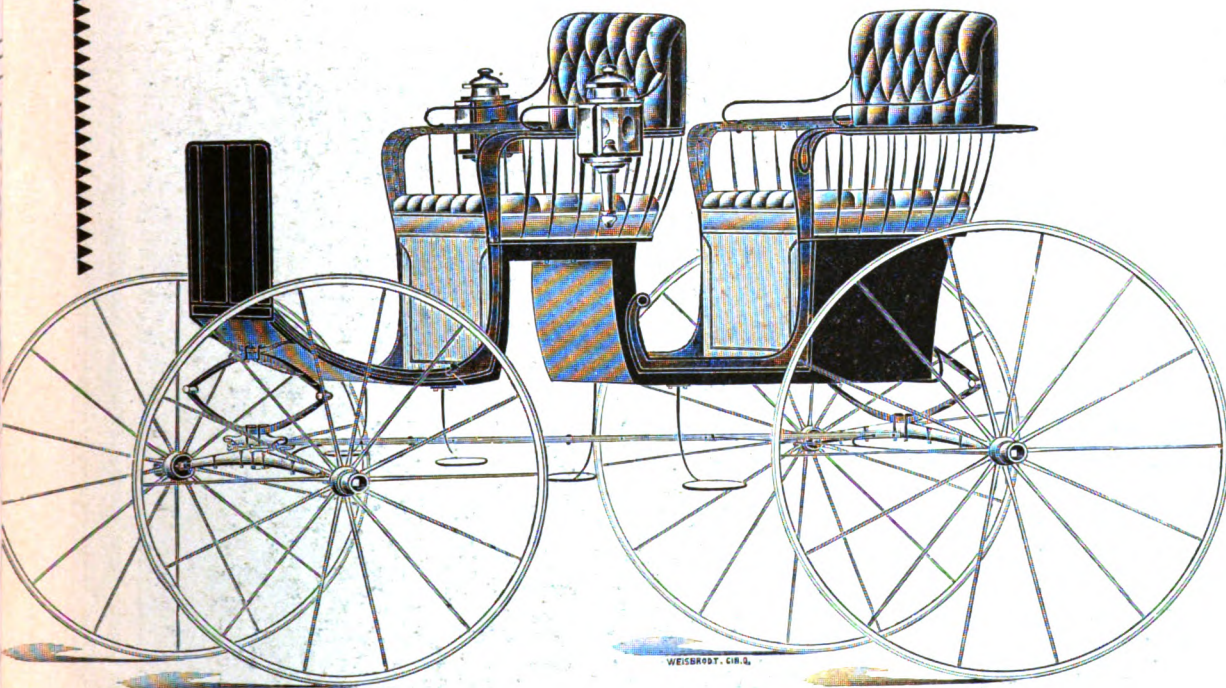
STAVER CARRIAGE CO.,

CHICAGO.



No. 91 Stanhope

Highest
Grade
Workmanship.
Excellence
in
Design.



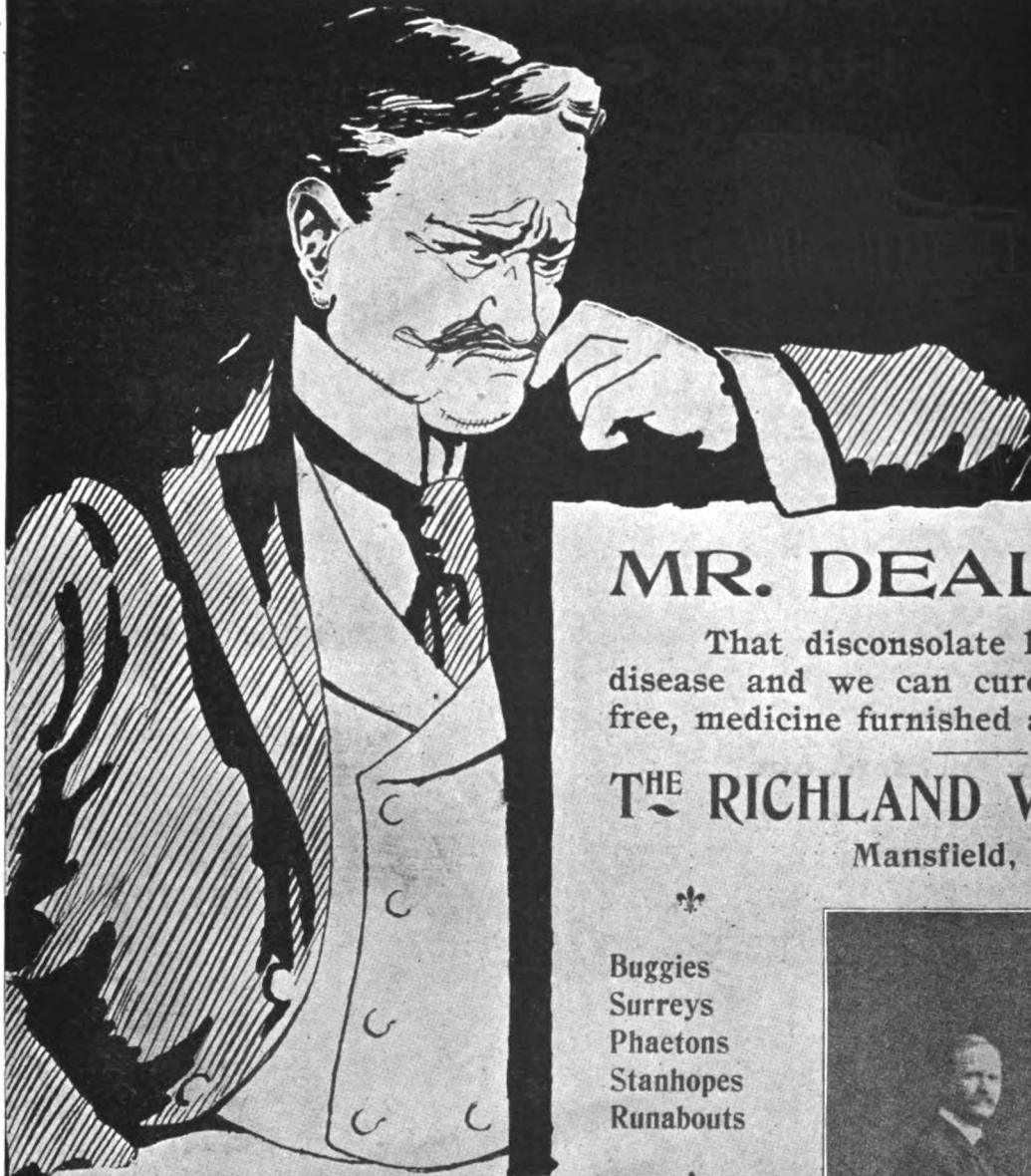
No. 565 Surrey

Easy to Sell.
Quick
Shipments.
Perfect
Satisfaction
to
the
Buyer.

Our "Peerless" Stick Seat Surreys are extra fine in material and finish. Light, compactly built, roomy in the seats and very comfortable.

SEND FOR COMPLETE CATALOGUE AND TRADE PRICES.

Please mention "The Hub" when you write.



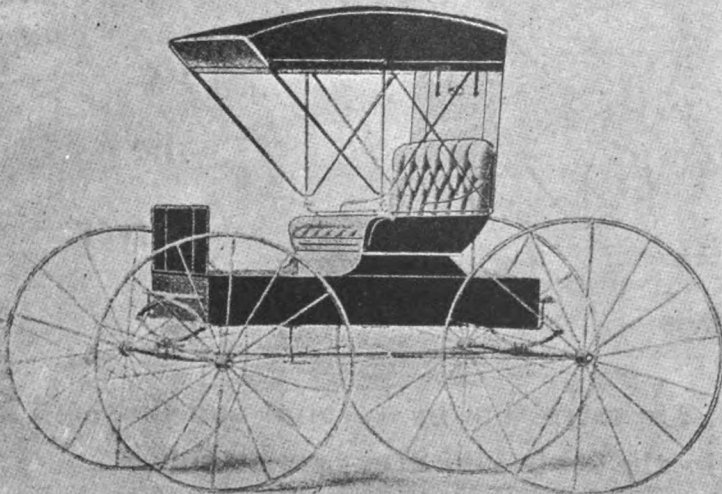
MR. DEALER

That disconsolate look of yours is a disease and we can cure it. Prescription free, medicine furnished at popular prices.

THE RICHLAND VEHICLE CO.

Mansfield, Ohio

Buggies
 Surreys
 Phaetons
 Stanhopes
 Runabouts



OUR No. 7-11. WINNER BUGGY



Please mention "The Hub" when you write.

LEE J. AUBRY CARRIAGE CO.,

NEW HAVEN, CONN.

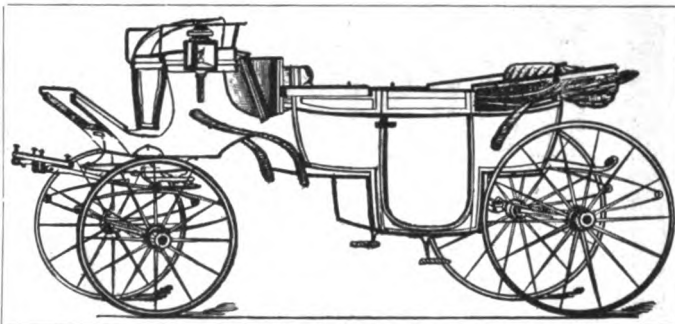
.. Builders of ..

LIGHT AND HEAVY CARRIAGES

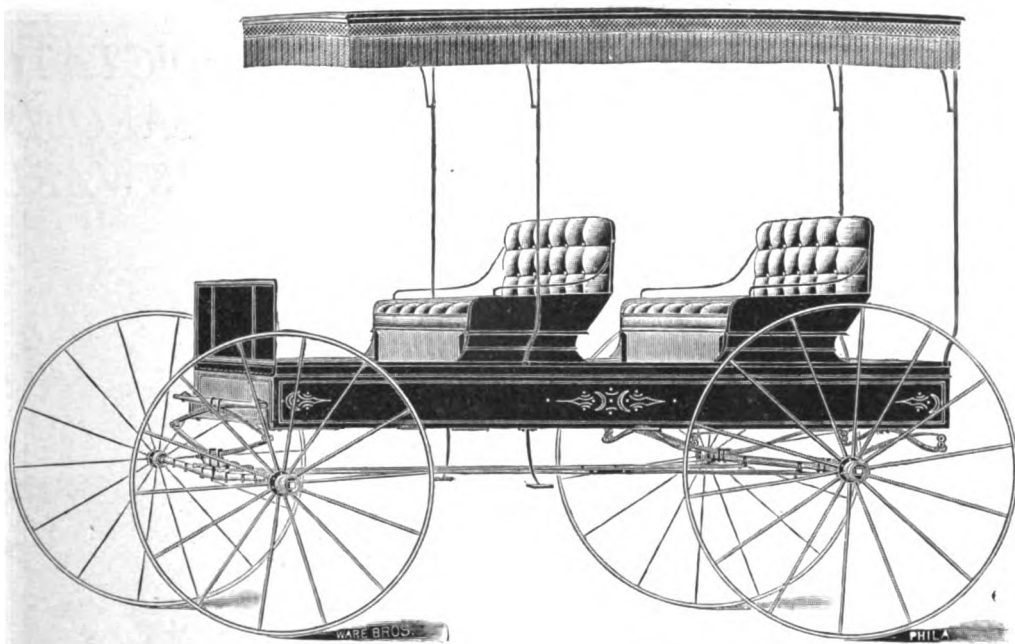
READY TO PAINT.

WOULD you like to place your orders for first-class BODIES, also practical GEAR WOODWORK, Properly Made? COUPE SHAFTS with Irons Complete. STIFF COACH POLES, all Sizes. We can serve promptly. Practical AUTOMOBILE GEARS, with or without BODIES.

CORRESPONDENCE SOLICITED AND PROMPTLY ANSWERED.
FORGINGS OF ALL KINDS DONE AT SHORT NOTICE.
COACH GEARS A SPECIALTY.



SPRING
WAGONS



ROAD
WAGONS



WAIT FOR OUR PRICES

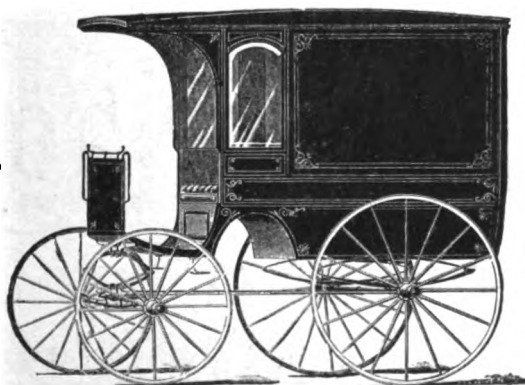
WE SHALL OFFER THE BEST VALUE IN SPRING WAGONS
ON THE MARKET THE COMING SEASON

GALION WAGON AND GEAR COMPANY

GALION, OHIO

BEST ... IN THE MARKET

THE QUALITY OF
OUR WORK IS
GUARANTEED



No. 365.

WE BUILD HONEST
WAGONS
AT HONEST PRICES

Write for Our Illustrated Form
N. Catalogue and Price List.

THE ...
O. ARMLEDER CO.
CINCINNATI, OHIO

Please mention "The Hub" when you write.

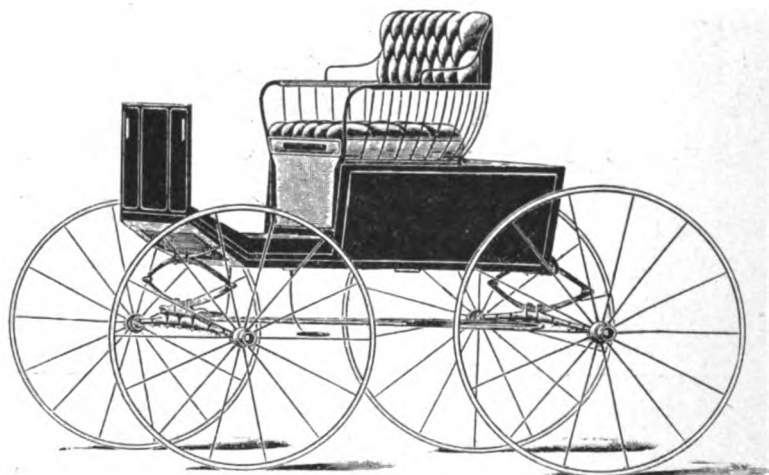
Keystone Carriage Co.'s THOROUGHBREDS

ALL WINNERS

CAPTOR
CONEY
ALLERTON

AXTELL
ARMOREL
STAR POINTER
DIRECT

DICTATOR
HAROLD H.
ONWARD



MAZETTE



Back The Winner

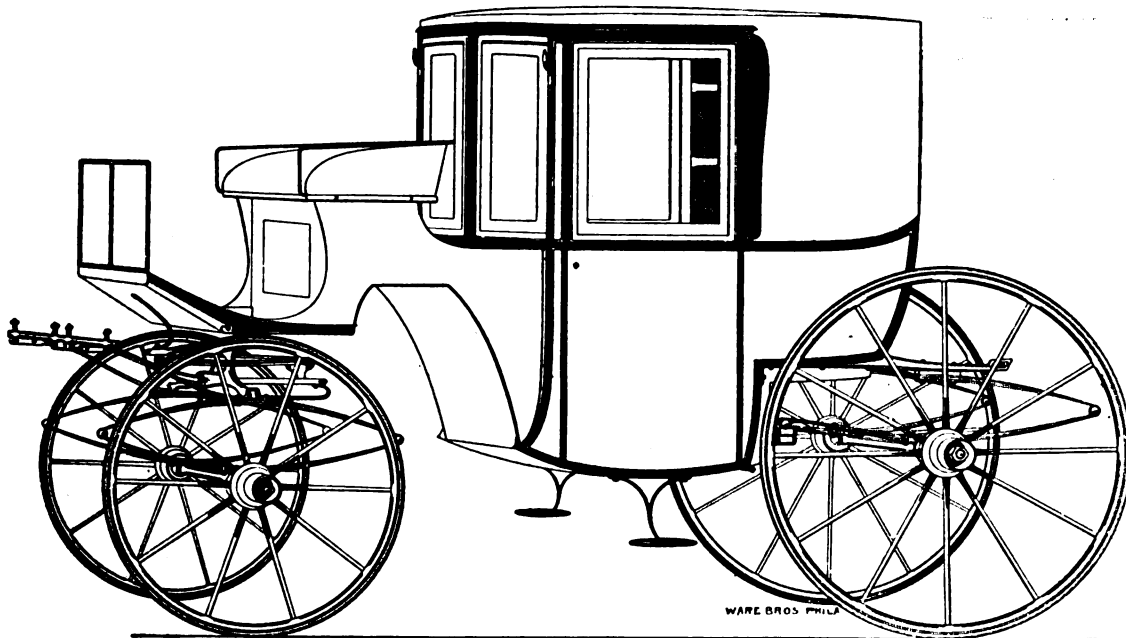


Keystone Carriage Co.

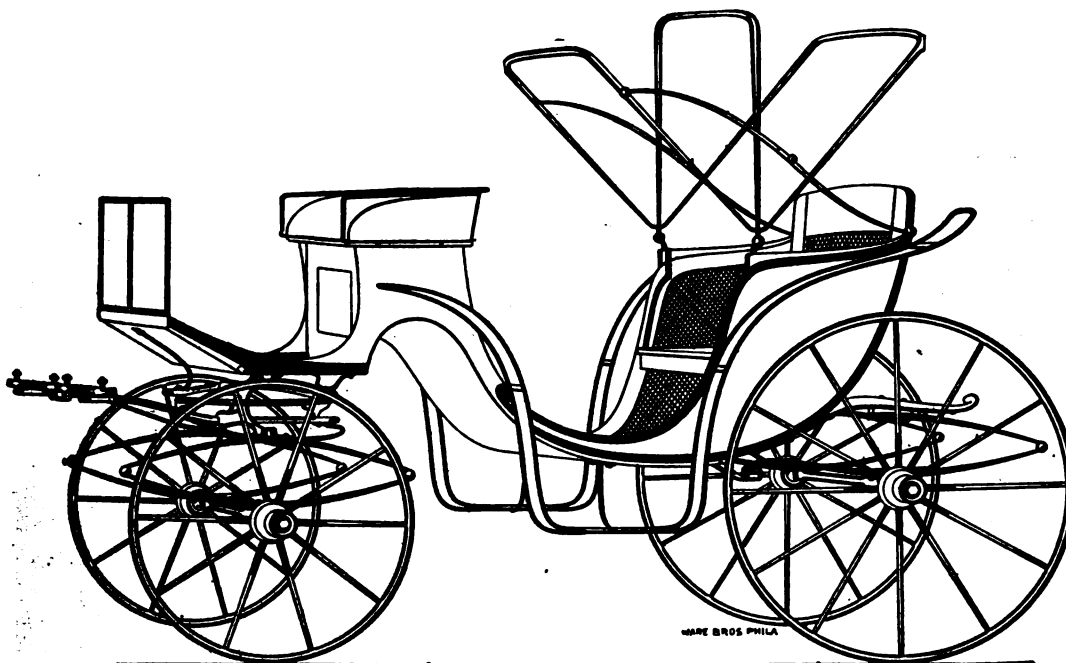
CINCINNATI, O.

CARRIAGE AND AUTOMOBILE

"Horton" Grade STANDS FOR Highest Grade



'UP-TO-DATE CARRIAGES IRONED IN THE WHITE.

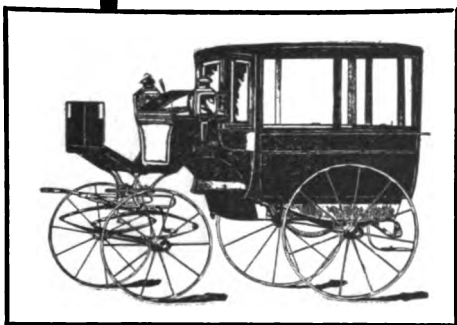


I have moved to 127-131 Park Street.
H. A. HORTON, NEW HAVEN,
CONN.

Please mention "The Hub" when you write.

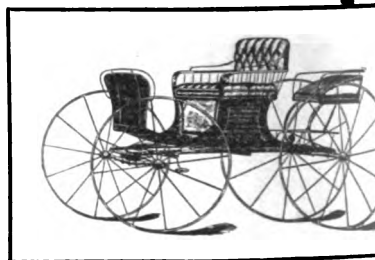
H. H. BABCOCK CO.

WATERTOWN, N. Y.

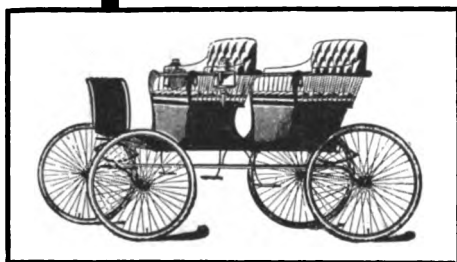


You can boom your "first of the year trade" by selling the Babcock. . . .

The Babcock's show more style and character than any other line on the market.

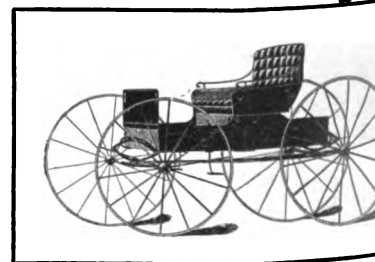


The Babcock's always sell. Dealers never carry over Babcock's.



The Babcock Catalogue will soon be ready. Send for it.

Remember, Babcock first, last and all the time.



FINE CARRIAGES

Are You With Us

**Always
Busy ..**



*Now Ready for 1902
Send for Prices.*



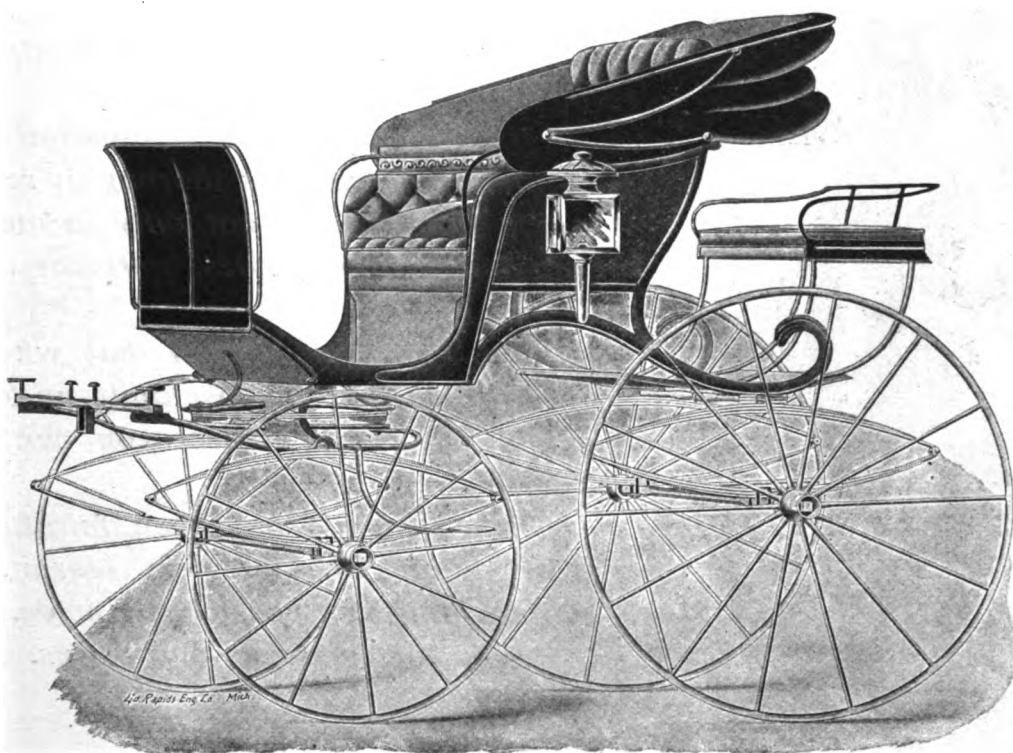
REX BUGGY CO.

Connerville, Indiana.

No. 126 A.

**Platform Spider, with
rumble seat. This
cut shows one of our
popular styles. We
have many others that
will interest builders
of high-grade work.**

Catalogue on Application



— MILLER BROS. —

**BUILDERS OF HIGH-GRADE CARRIAGES IN THE WHITE,
AMESBURY, MASS.**

Please mention "The Hub" when you write.



REPUTATION ... MAKERS IN THE WHITE, NOT PAINTED

A good reputation is a most valuable business asset—a valuable asset for you—an equally valuable asset for us.

This is the principle on which we do business—to add to our reputation by pleasing you—to add to your reputation by pleasing your customers.

Good reputations are won only by dealing in reliable articles—articles about which there is absolutely no question as to the high quality.

High quality is the foundation stone of our business. To make our vehicles thoroughly reliable in every respect is our aim—reliable not only in materials and workmanship but also in styles, patterns, trimmings and every detail.

We want you to feel that when you need a vehicle of our line that is absolutely up-to-date and thoroughly reliable in every respect you can depend on getting it from us.

This principle has been faithfully adhered to in constructing our line for next season. It is as dependable as any thing can possibly be made.

Send for catalogue and prices.

The Buffalo Spring and Gear Co.

BUFFALO, N. Y.

Please mention "The Hub" when you write.

PROFIT WINNERS

IN THE WHITE, NOT PAINTED

In looking after your reputation we haven't neglected the material end of your business.

Reputation making is not your sole end and aim. You are in business to make money. A good reputation is necessary in order to make money but it is only a side issue after all.

It's the profit you are really after.

We add to your profits by giving you reliable vehicles at a cost which enables you to sell them at attractive prices.

High quality at low prices is unusual but not impossible.

We are the exception to the rule.

Economical methods of manufacturing enable us to quote prices which are seemingly impossible, considering the high qualities furnished.

We build only a few styles—we build these few styles in large quantities—we employ every known labor-saving method.

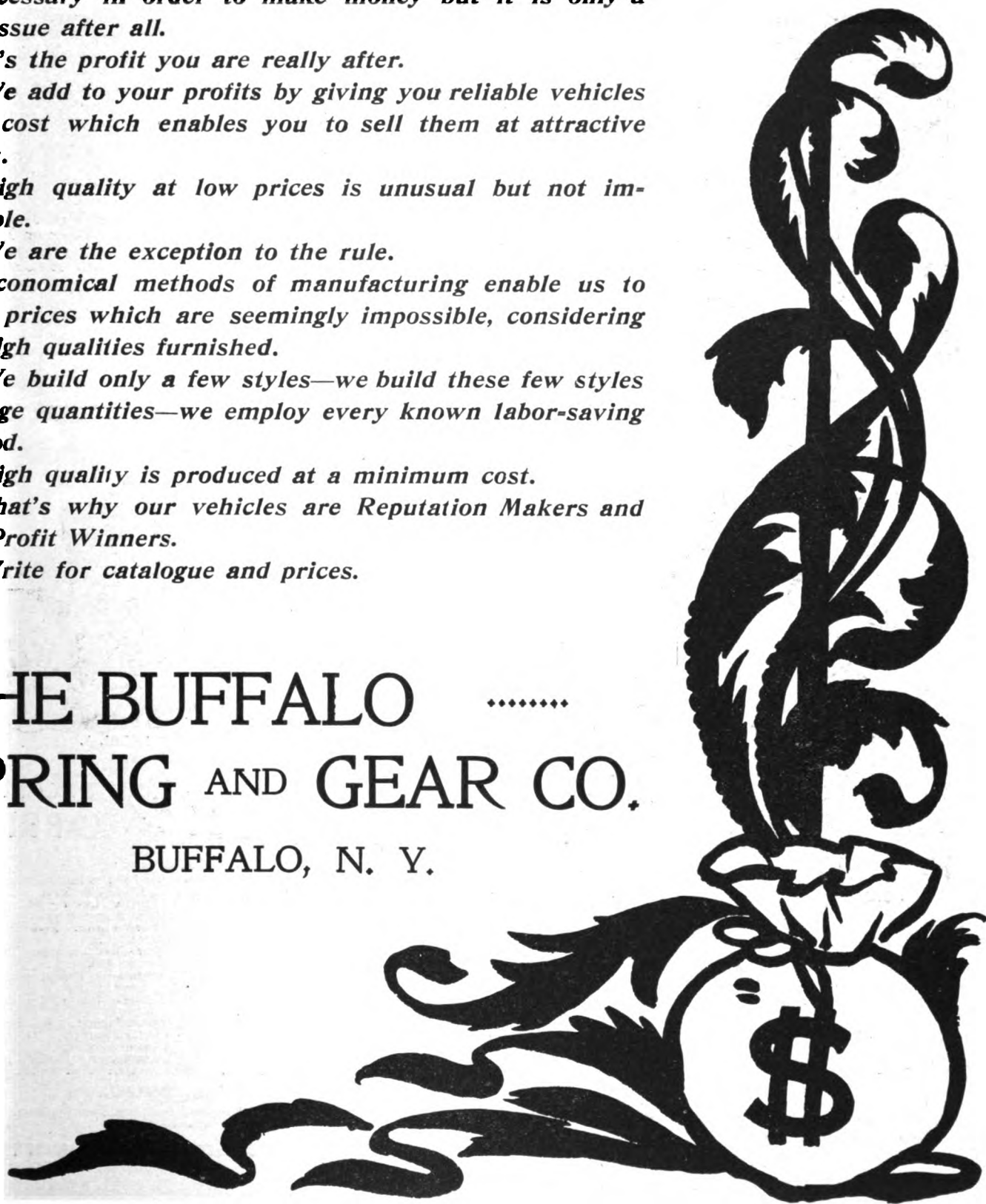
High quality is produced at a minimum cost.

That's why our vehicles are Reputation Makers and also Profit Winners.

Write for catalogue and prices.

THE BUFFALO
SPRING AND GEAR CO.

BUFFALO, N. Y.



Please mention "The Hub" when you write.



MODEL E—PRICE, \$900.00

Stearns

STEAM CARRIAGES.

Eight Models . . . New Features

Agents Wanted

Model A—Runabout.

Model B—Dos-a-Dos.

Model C—Delivery Wagon.

Model D—Buggy Top Runabout.

Model E—Victoria “ ”

Model F—Surrey.

Model G—Touring Car.

Model H—Station Wagon.

Immediate Delivery

Regular Equipment

Low Water Alarm.
Fire Controlled from Seat.
Pilot Light.
Engine, encased, runs in oil.

Feed Water Regulator.
Air Pump on Engine.
Gasoline Generator.
Double Action Brake

Stearns

STEAM CARRIAGE CO.

SYRACUSE

NEW YORK



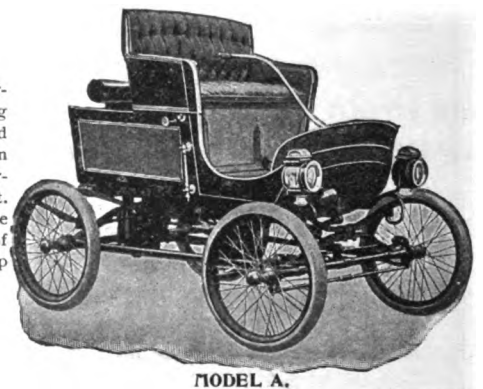
THE popularity of the “Oldsmobile” has become so marked that we take this opportunity to notify all imitators and infringers that, while our motor is covered by our engine and designed patents, we have a number of applications for patents upon the mechanical improvements in our device, which are allowed, covering nearly every part of the machine.

ILLUSTRATED CATALOG ON APPLICATION.

Olds Motor Works,

53 CONCORD AVENUE,
DETROIT, MICHIGAN.

A neat, trim carriage, containing more exclusive and special features than any other steam carriage on the market. Strong, serviceable and durable. Best of workmanship throughout.



MODEL A.

“Toledo”

STEAM CARRIAGE.

SPECIFICATIONS:

Style—Model A.

Engine—Oil encased, 3 in. x 4 in. piston valves.

Boller—Water tube.

Burner—19 in., with pilot light attached.

Water Tank—Copper, holding 31 gallons.

Gasoline Tanks—Two, of copper, holding 4½ gallons each.

Air Tank—Copper, tested 200 pounds pressure.

Water Pump—New design, attached to engine cross head.

Air Pump—New design, automatic, attached to engine cross head.

Hand Water Pump—In combination with steering lever.

Throttle Lever—In combination with reverse lever.

Steering Lever—Non-vibrating, center steering.

Gear—Best Seamless Tubing, 1½ inches diameter.

Wheels—28 inches, wire, nicked spokes and hubs.

Tires—28 inches by 3 inches, single tube.

Upholstering—Best grade hand buffed leather.

Seats—Solid Panels.

Accessories—Lamps, bell, cyclo-meter, lock for throttle and tools.

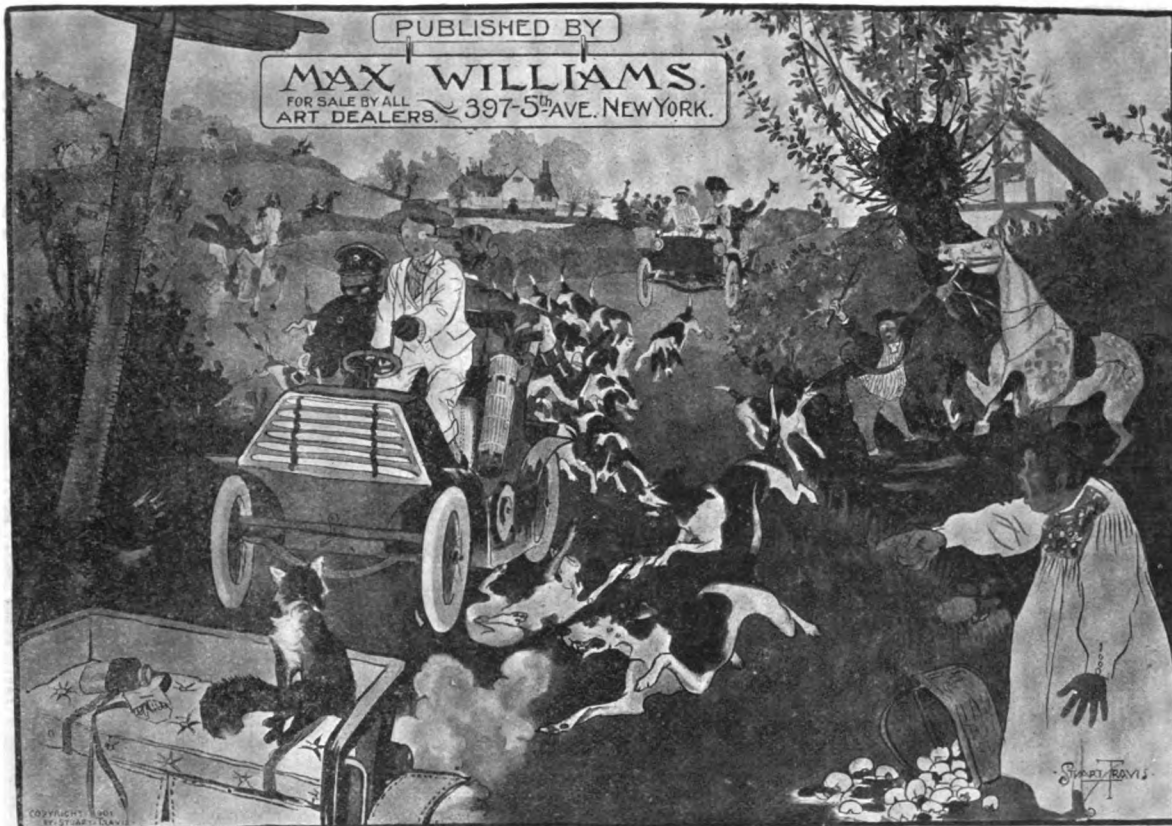
Price, \$900.

Send for “Toledo” Booklet. Send Free Upon Application.

AMERICAN
BICYCLE
COMPANY,

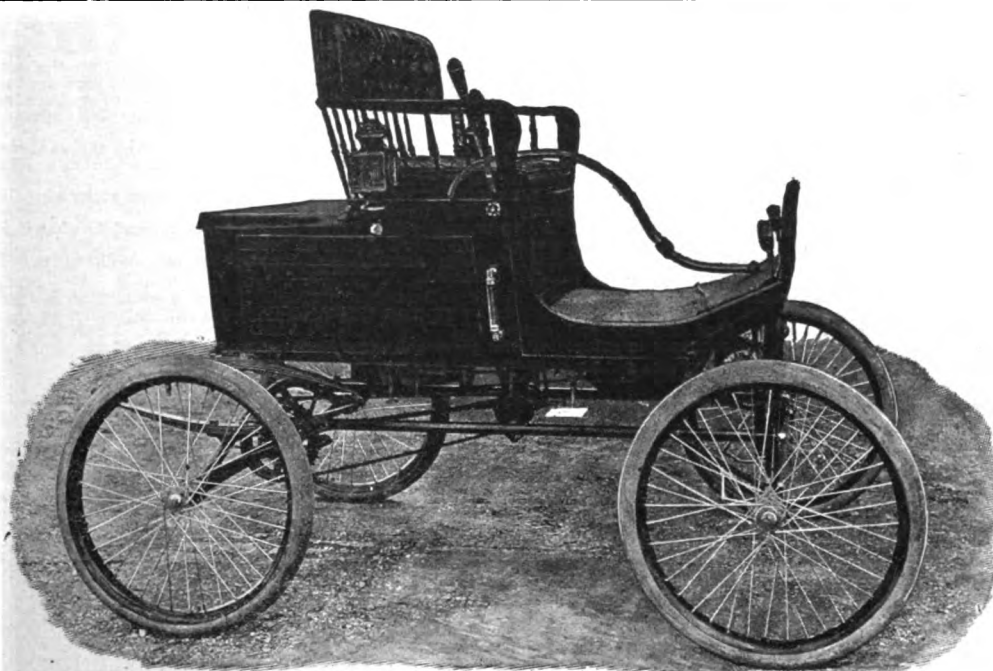
Automobile Department,
TOLEDO, OHIO.

NEW YORK BRANCH, 97 FIFTH AVENUE.



One of a Series of 4 Pictures by Stuart Travis.
Facsimile in Colors. Price per set, \$15.00.

"The Interrupted Hunt."



In recognition of the importance of the industry established by The "Mobile" Company of America at Kingsland-Point-on-the-Hudson, the New York Central & Hudson River Railroad has established a station at the factory of The "Mobile" Company with a service of twenty-five trains a day.

The original Philipse Manor, two hundred and twenty years old, still stands on the company's property, and the railroad company has appropriately, in view of its historical and literary associations, given this name to the station. The run from the Grand Central Station in New York is one hour. The manor house and old mill and Sleepy Hollow are part of the company's property, connected by the Headless Horseman's Bridge. The old Dutch Church, and Washington Irving's grave and the monument marking the spot where André was captured, are in the immediate vicinity. When you visit New York, you will find a trip to the factory of

THE "MOBILE" COMPANY OF AMERICA

quite worth a half day's outing. Kingsland Point itself is considered to be the most beautiful section of the Hudson. The visitor is looked after by The "Mobile" Company's corps of demonstrators, taken for a ride in a horseless carriage, and shown all the different processes which enter into the fifteen departments required to manufacture a horseless carriage. He may inspect both quality of material and workmanship, see the new carriages tested as they are taken from the works one after another, and have every opportunity to satisfy himself of the excellence of the carriage in every particular. Price, \$750 Complete.

THE "MOBILE" COMPANY OF AMERICA, Philipse Manor Station, Tarrytown, N. Y.

Please mention "The Hub" when you write.



Who Sells Your Customers These ?

"3 in 1" is used on automobiles for lubricating, cleaning, polishing and preventing rust. Quickly, easily and cheaply produces a high polish on nickel and steel parts, and lubricates perfectly the delicate motive mechanism.

Will not gum, collect dust or dry out. Prevents rust and tarnish, insuring the machine against damage when used in damp weather.

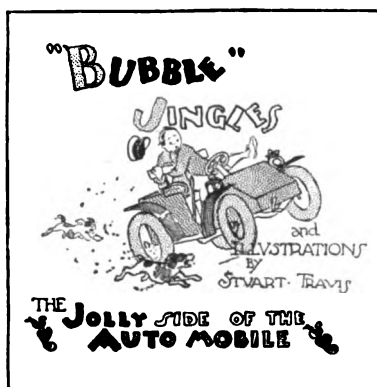
P. M. is the perfect axle lubricant. 97% pure graphite and "3 in 1" oil. Will not heat, gum or run—stays where it is put.

Your customers want "3 in 1" and "P. M." Will you or the other fellow sell them?

Order through your jobber or from us. Write for samples, prices and illustrated catalogue.

G. W. COLE CO.,

203 Washington Life Bldg. - - - New York City.



DID YOU SEE US AT THE AUTOMOBILE SHOW ?

"Bubble" Jingles: The Jolly Side of the Automobile

By STUART TRAVIS.

Read what the papers have said of this attractive book:

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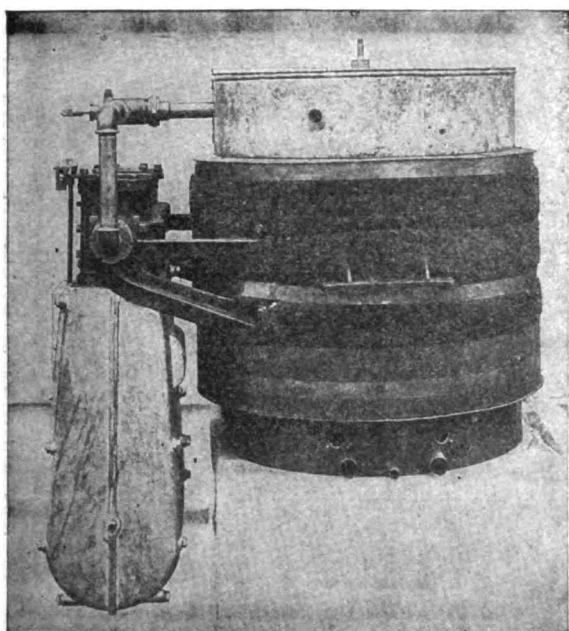
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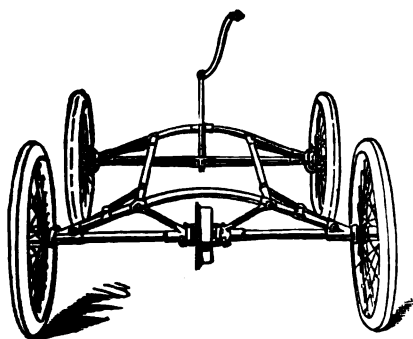
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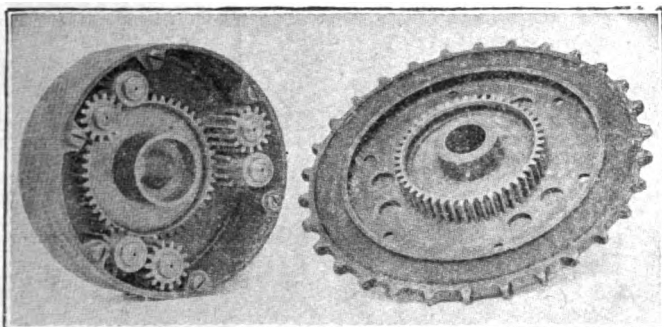
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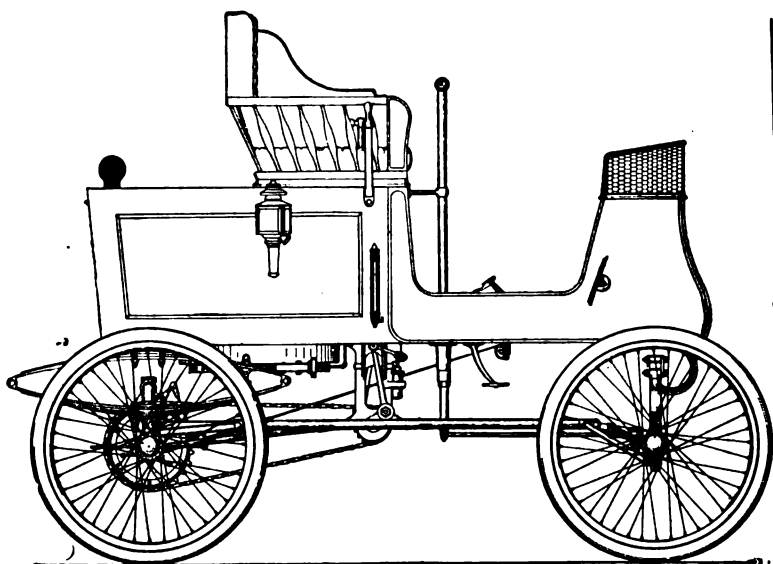
ON June 10th, four "Mobiles" started in the middle of the afternoon from the factory of The Mobile Company of America at Kingsland-Point-on-the-Hudson and ran to West Point, reaching the ferry at Garrisons in time for the 5:15 boat. Two hours and a half were spent in running about the Military Academy roads, then, after dinner, the four carriages started home by moonlight. The road from Kingsland Point to West Point is hilly, with many steep gradients scattered over its length; but from the State Camp at Peekskill through the Highlands of the Hudson to West Point occur long climbs and very steep and rough roads. The distance traveled was approximately, including the running at the Academy grounds, sixty-five miles. Not a delay or accident of any kind occurred; not a moment's worry to anyone of the eight people who made the journey. The "Mobiles" were in as good condition at the end as at the start—not one, but the entire four—and one of them had come up from New York to Kingsland Point before starting for West Point.

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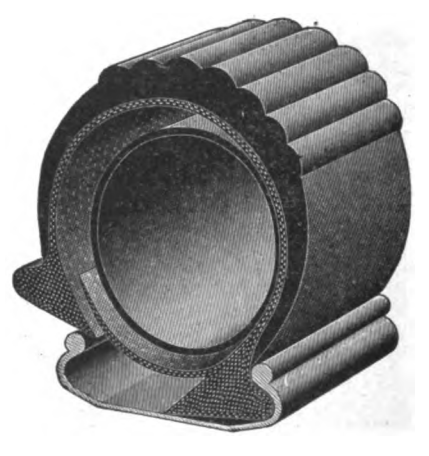
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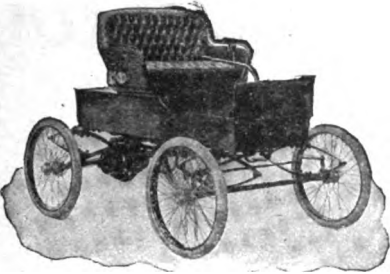
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Upholstering. Handsomely finished in dark green leather.
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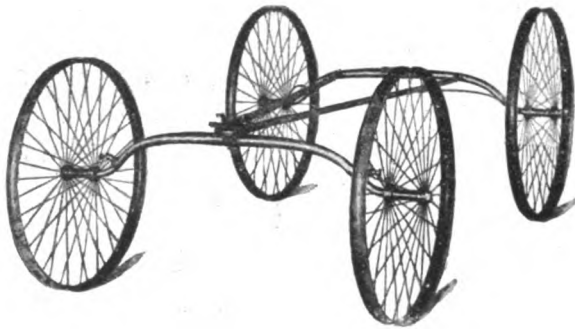
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Vehicle Exhibitions.

Now that the exhibitions of finished vehicles for the year are ended, a free discussion as to their value to the carriage manufacturers is in order. If all, or even a majority of the trade favored these exhibitions there would be little or no reason for referring to them, except to notice the exhibits and to report on whatever there was that was new or novel, but as it is, a very small portion of the whole who are engaged in the manufacture of carriages or wagons, favor or attend them and less than one to a hundred make exhibits. Were these exhibits held for the purpose of showing the newest styles, most popular or desirable trimmings, colors, striping or finishing, the situation would be changed. But as it is, the exhibit is a business venture, pure and simple; from the men who plan and control the show,, to those who place their vehicles on

view, the one object in view is the getting of money. They who plan them draw from the trade, while those who exhibit, hope to draw from one another or from those who do not. The western manufacturer visits the eastern exhibition and shows his goods, with the hope of capturing some other man's eastern customer, while the eastern manufacturer shows his vehicles with the hope of capturing western customers, from some one who has been supplying them. It is simply a grab game in which there are winners and losers. No one believes that an additional vehicle is sold over what would have been had there been no exhibits, as the dealers, not the consumers, are buyers. The latter could not buy if they would and the dealer, unless overinfluenced, dare not purchase one vehicle more than he otherwise would, although he may buy of some one or more manufacturers with whom he had no prior dealings. In this the dealer may be the gainer by increasing his variety but the manufacturer gains nothing, or if he does it is at the expense of some other manufacturer. These transactions, therefore, being merely a transfer of customers that are as likely to react as adversely to the man who was successful as to the one who was first to suffer from such transferring of trade. The danger to the dealer is in his liability to overstock, when buying with such a line of vehicles to choose from. To the manufacturer it becomes a question of finance. To attend one of these exhibits he must make a large outlay, first for space, then for transportation, then for expense account during the show and finally reshipping his goods if not sold. To which must be added the losses arising from calling in all his men on the road, and virtually giving no attention to selling except at the show. It has been estimated that \$75,000 was spent by manufacturers in making their exhibits at the New York show, and it could not have been less at the Cincinnati exhibition. The question therefore that presents itself is, "Was not the \$150,000 a high commission for the business done?" The man who booked large orders was undoubtedly satisfied at the time, but before he can determine the profit of the venture, he must wait for time to show that his increase of business for the year was benefited to an amount that will compensate him for the outlay. So far as the exhibitions were concerned they were handled most admirably by the projectors and they richly deserve all the profit that accrued to them in connection therewith, and THE HUB trusts that they were well paid for the time and trouble, and so far as they are concerned all would most willingly see the exhibits double what they were and oftener, but we are not looking at the personal situation: with us it is a question whether the trade, not the projectors, were the gainers. If these exhibits lead the consumers to buy more freely than they otherwise would, the investment would be a good one, but as there is nothing to show that such has been the

case in the past it looks to us like a mighty poor investment. Then there is another view. It unquestionably disorganizes trade during the early fall months. Dealers who intend visiting the shows, as well as those who do not, defer purchasing until the fall shows and salesmen hear the oft repeated expression, "I guess I won't place any orders until after the exhibitions," and they return to the manufacturer with empty order books and the usual bill of expenses, and not a few of the manufacturers would be the gainers if they kept their men off the road during July, August and September. Then if the customer is not seen at the exhibition the salesman must take another trip. All this means expense and aggregates a heavy sum. But says one: "If I do not attend my competitor will sell to my customers and I will lose that much trade." It then becomes a question with him whether the trade thus lost is equal to the expense incurred in trying to save it. Looking at it therefore as we may, the whole matter resolves itself into a question of finance. If exhibitors as a whole do not gain enough from the shows to leave them a fair margin of profit, then the shows should be discontinued; we cannot accept the statement of a few who did profit by the shows as evidence of the value. If not profitable to all and beneficial to the trade they are unprofitable and should be discontinued; if they are, all should then encourage them no matter who controls them. It is none too early to look into the matter. We have thus far confined our remarks to the exhibits of finished vehicles, but these do not constitute the full lines shown. The number of exhibitors of materials, this year, was nearly equal that of exhibitors of finished vehicles. That they did not reap the benefits hoped for was manifest by the fact that a very large majority of such exhibitors signed a protest against showing accessories along-side of finished vehicles. Nor is the fact one to cause surprise. The manufacturers of carriages were there, with their products, for the purpose of showing them to dealers, hoping to make sales thereby, and they had no time or inclination to consider materials, and repeated protests were made by them against interruptions by salesmen of supply houses. Dealers are not buyers of materials, and if they interest themselves in them, they do so as a matter of curiosity, or for the purpose of learning what manufacturers of finished vehicles pay for their goods, as all quotations are on the wholesale basis. These dealers are averse to manufacturers quoting wholesale carriage prices to consumers, but they do not object to getting bottom quotations for accessories, and use such knowledge when buying the finished vehicles. This is, however, a secondary point, the main consideration is, Does it pay to exhibit accessories to dealers who are not buyers, or to manufacturers whose whole time is taken up in their efforts to sell the finished carriages to dealers? We think not, and we therefore take a decided stand against these mixed exhibits, believing that the interests of all will be best subserved by separate displays. The margin of profit is narrow with nearly every line of materials used in carriage or wagon making, and the heavy tax imposed, by repeated exhibits, is burdensome and unnecessary, in view of the fact that so large a percentage of those who visit the finished carriage exhibits are not buyers of materials under any circumstances. Let it once be made known, that positively there would be no exhibits of materials at the finished carriage shows, and that there would be one exhibit of materials and accessories at the carriage manufacturers' show, the entire matter would be settled at once without clashing of interests. Those buyers of materials who wished to await the annual meeting before making their purchases could and would arrange to be present, and exhibitors would be subject to comparatively small expense, whereas, three or four exhibits at different points makes a demand upon time and purse that few feel able to grant. How great this inroad upon time really is can be seen at a glance, when we say that three out of the six weeks intervening between Oct. 14th, the first day of the opening at New York City, and Nov. 23d, the last day of the show at Cincinnati, were consumed by this attendance, in addition to the time spent in traveling to and fro, and

in arranging and repacking goods. The question is an important one, and one that deserves the most careful consideration. If these repeated exhibits entail a loss upon exhibitors, the number of exhibits should be curtailed. There should be but one great exhibit of materials, and that should be held at a place of meeting where carriage and wagon manufacturers congregate in the greatest numbers. THE HUB sees no middle ground, and stands therefore unequivocally in favor of holding separate exhibits, believing such a course would result to the advantage of manufacturers of vehicles, dealers, and the accessory trades.



Clement Studebaker.

It is with sincere sorrow that we record the death of Clement Studebaker, of South Bend, Ind. To write even a résumé of the life of such a man as Mr. Studebaker is a task that we do not feel able to perform, and we can do no more than offer a short tribute to his memory. Almost thirty years ago we first met him and formed his acquaintance. He was then, as in his later years, a quiet, unassuming man, but one whose force of character placed him foremost among his fellows. He loved the industry with which he was allied, and wherever he could aid to its advancement he was a willing worker. His ability was acknowledged, his honor unquestioned. He never saw the day that he was ashamed of his early privations, or the humble home in which he was reared. In fact, that home, with father, mother and brothers, was to him a sacred memory, a memory that neither wealth nor position could efface. His quiet, yet forceful nature won the respect of men great in political, business and social life, as well as that of those who were in his employ. He was one of those who could control without a show of power, but one who never used that talent except for the betterment of his associates or dependents. In his social life he was the embodiment of courtesy and goodness, his charity extended far beyond the giving of alms, his purse was as ready as his advice, and he had the faculty of infusing a like spirit to those around him. Tender hearted, almost to an extreme, yet inflexible in the right, he wrought for good wherever he went, and in his passing away he leaves behind him such a wealth of good deeds that will keep his memory a treasure long after those who were his associates shall have joined the great majority. The carriage trade had no more treasured associate, and his death will create a sorrow that will be assuaged only by the recollection of his great wealth and his charitable deeds.



Paradoxical.

At the Tri-State Vehicle and Implement Dealers' Association there was the usual ranting about trusts and combinations, in which a little truth was mixed with a large percentage of falsehood, and the poor, downtrodden public was held up to the view of the members, and piteous pleas were made to save all from the terrible rapacious jaws of the monster corporations, and pleas were made for more stringent anti-trust laws than those now in existence, and then the association showed its opposition (?) to all combinations by passing a series of resolutions, notably clauses 7 and 8, pledging themselves to boycott manufacturers who may choose to sell goods to houses not favored by the association. "Consistency is a jewel." If opposed to trusts and combinations, why not oppose them, why create them for your own benefit and oppose them in others. The man who would deal in carriages feels that because his means are too limited to permit his carrying all the year round the specified number of vehicles required by the laws of the associations to place him in the rank of dealers, feels that he is as much the victim of combinations as is the great manufacturer who is compelled to purchase his supplies from some other combination. We do not array ourselves against combinations, whether they be in the form of corporations or of associations, but we do think that a wholesale denunciation of one line of corporations, by men who are engaged in a combination in another, is inconsistent and evidences the insincerity of the parties who make the denunciations.

Description of Latest Styles.

ERRORS IN THE PAST.

THROUGH causes that our readers might think slight errors appeared in the November HUB in connection with our Fashion Plates, that in justice to all should be corrected. The first was in accrediting the Cutunder Buggy No. 528 to the Columbus Buggy Co. It should have read the Columbus Vehicle Co., the designers and builders. By a transposition of plates the Park Wagon, built by Frazier & Co., Aurora, Ill., was numbered 530 instead of 529, and the end spring "runabout," built by Fouts & Hunter, Terre Haute, Ind., was numbered 529, instead of 530. The numbers and descriptions of Latest Styles were correct. The error was in wrongfully placing the cuts.

BREWSTER RUNABOUT.

Scale, $\frac{1}{2}$ in. to the foot.

(See Fashion Plate No. 534.)

FASHION PLATE No. 534 illustrates the latest Brewster Runabout. This is plain to an excess. It differs from the older standard runabout in that while the body is built full length the axles are farther apart, so that instead of the body ends overhanging the axles three to four inches, the overhang was just enough to cover the bed of the axles, and not to project beyond them. This gave a few inches longer tread to the wheels than with the older styles, but it maintains the cardinal features of the runabout, viz.: a long body, a cranked axle and an overhang sufficient to place the entire gear under the body. The seat used was the plain low paneled, with more than the usual flare at the ends and back.

Dimensions of woodwork—Body: Length, 59 in.; width across top, $26\frac{1}{2}$ in.; across bottom, 26 in.; width of seat across top, 37 in.; across bottom, 30 in. Wheels: wood hub; height, outside of rubber tire, front, 44 in.; rear, 49 in.; hubs, length, $6\frac{1}{2}$ in.; diam. at centre, $3\frac{3}{4}$ in.; front end, $2\frac{1}{2}$ in.; back end, 3 in.; size of spokes, $1\frac{1}{8}$ in.; number of spokes, 14 and 14; stagger, $\frac{1}{4}$ in.; depth of rims, $1\frac{3}{16}$ in.; tread of rims, $1\frac{1}{8}$ in.; depth of bands, front, $2\frac{1}{2}$ in.; back, $\frac{3}{4}$ in.; distance between centre of axles, 58 in.

Dimensions of ironwork—Springs: 30 in. long between centres of heads, with $2\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{3}{8}$ in.; number of plates, 4; thickness, No. 3 steel. Axles, 1 in.; tires, $1\frac{1}{8}$ in.; solid rubber tires; fifth wheel, 12 in. diam; track, outside, 4 ft. 6 in.

Painting—Body, black, no striping; gear, deep green, striped with $\frac{1}{4}$ in. line of black; trimming, black cloth; plain back and upholstered cushion. The inside of seat is lined with patent leather and padded. Finish, rails, bands, etc., black.

STANHOPE GIG.

Scale, $\frac{1}{2}$ in. to the foot.

(See Fashion Plate No. 535.)

FASHION PLATE No. 535 illustrates a Stanhope Gig of the acknowledged type. Of all seen at the Horse Show, there were none that were not hung upon Stanhope gear, even the few that showed bodies of different form were no exception to this rule. There was not a Tilbury present, and as those shown were mainly the products of leading manufacturers we may rightfully accept this as the standard gig type for the present.

Dimensions of woodwork—Body: Length over all, 44 in.; width across top, outside of pillar, 41 in.; across bottom, outside of pillar, 30 in.; at seat, outside of pillar, 37 in.; body proper, width across top, $29\frac{1}{2}$ in.; across bottom, 28 in. Wheels: wood hub; height, outside of rubber tire, 48 in.; hubs, length, 7 in. diam.; at centre, $6\frac{1}{2}$ in.; front end, $4\frac{1}{4}$ in.; back end, 5 in.; size of spokes, $1\frac{3}{4}$ in.; number of spokes, 14; stagger, $\frac{1}{4}$ in.; depth of rims, $1\frac{5}{8}$ in.; tread of rims, $1\frac{1}{2}$ in.; depth of bands, front, $2\frac{1}{2}$ in.; back, 1 in.

Dimensions of ironwork—Springs: Side, 38 in. long between centres of heads, with $2\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{5}{8}$ in.; number of plates, 4; thickness, No. 3 steel; cross, 36 in. long, with $3\frac{1}{2}$ in. set; width of steel, $1\frac{5}{8}$ in.; number of plates, 4;

thickness, No. 3 steel; axle, $1\frac{1}{4}$ in.; tires, $1\frac{1}{2}$ in, solid rubber; track, outside, 4 ft. 8 in.

Painting—Body, black; seats finished in imitation cane work; Stanhope pillar and bracket dark green, moldings black. It may be well to state that plain and spindle seats were also shown upon bodies of this pattern. Gear, dark green, striped with $\frac{1}{2}$ in. line of black; trimming, light Bedford cord; inside of seat is lined with patent leather, which is padded considerably; finish, lamps, rails, bands, etc., black, silver plating being omitted entirely.

CABRIOLET.

Scale, $\frac{1}{2}$ in. to the foot.

(See Fashion Plate No. 536.)

FASHION PLATE No. 536 shows the latest in Cabriolets. The quarter has an easy, graceful sweep, which is duplicated by the sweep of the arm and front pillar. The body is short and compact; the boot panel of medium dimensions, and the spread of the top somewhat narrower than common. It is plain in its finish. The wings extend from the steps up and over the wheels; the bow wings are dispensed with. In its present form it is one of the most pleasing of our pleasure carriages. The fittings throughout are rich, but exceedingly plain.

Dimensions of woodwork—Body: Width across front of boot, 31 in.; across outside of arm rail, front, 50 in.; back, 40 in.; bottom of body, 40 in.; turnunder, 5 in.; coachman's seat, 40 in. wide. Wheels: wood hub; height, outside of rubber tires, front, 34 in.; rear, 46 in.; hubs, length, 7 in.; diam. at centre, 6 and $6\frac{1}{4}$ in.; front end, 4 and $4\frac{1}{4}$ in.; back end, $4\frac{3}{4}$ and 5 in.; size of spokes, $1\frac{5}{8}$ in.; number of spokes, 12 and 14; stagger, $\frac{1}{4}$ in.; depth of rims, $1\frac{5}{8}$ in.; tread of rims, $1\frac{1}{2}$ in.; depth of bands, front, $3\frac{1}{2}$ in.; back, 1 in.; distance between centre of axles, 7 ft. 3 in.

Dimensions of ironwork—Springs: Front, 38 in. long between centres of heads, with 7 in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 4; thickness, No. 3 steel; back, 40 in. long, with $8\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 4; thickness, No. 3 steel; back cross, 40 in. long, with 3 in. on main leaf; number of plates, 4; thickness, No. 3 steel; axles, front, $1\frac{1}{2}$ in.; rear, $1\frac{5}{8}$ in.; tires, $1\frac{1}{2}$ in., solid rubber; double fifth wheel, 18 in. and 24 in. diam.; kingbolt, $2\frac{1}{2}$ in. forward of centre; track, outside, front, 4 ft.; rear, 4 ft. 9 in.

Painting—Body, black, no striping; gear, black, no striping; trimming, cloth, smooth squabs, quarters and cushions; no lace or facing to the curtain; two square carpet cushions for the feet; finish, black throughout.

1901 AND 1902 BROUGHAM.

Scale, $\frac{1}{2}$ in. to the foot.

(See Fashion Plate No. 537.)

FASHION PLATE No. 537 illustrates the latest pattern of Brougham as shown at the New York Horse Show, built by a leading house. There is nothing radically new, but there are numerous minor points that distinguish it from its predecessors. That it is an attractive vehicle none will dispute; compact, plain and roomy, and freed entirely from freak features. The dimensions of the frame work are: Upper back quarter, 22 in. wide on the belt line; depth of quarter front from quarter molding to bottom of bottomside, $13\frac{3}{4}$ in.; width of door over panel moldings, 21 in.; depth of door panel from bottom of guard rail molding to bottom of bottomside, at the centre, $27\frac{1}{2}$ in.; depth of top of door from bottom of guard rail molding to top of door, 24 in.; depth of guard rail, $1\frac{1}{2}$ in.; depth of boot panel from the bottom of heel bar to top of boot, $14\frac{1}{2}$ in.; depth of panel over wheelhouse, $9\frac{1}{2}$ in.; distance from the back of the boot seat to the front of the coupe pillar, 7 in.; width of coupe pillar at the foot, 5 in.

Dimensions of woodwork—Body: Width across front of boot, 31 in.; across front of body, 44 in.; across hinge pillar, 50 in.; across back of body, 42 in.; turnunder, 3 in. Wheel: wood hub; height, outside of rubber tires, front, 36 in.; rear, 44 in.; hubs, length, 7 in.; diam. at centre, $6\frac{1}{4}$ and $6\frac{1}{2}$ in.; front end, 4 and $4\frac{1}{2}$ in.; back end, $4\frac{3}{4}$ and $5\frac{1}{4}$ in.; size of spokes, $1\frac{5}{8}$ in.; number of spokes, 10 and 12; stagger, $\frac{3}{8}$ in.; depth of rims, $1\frac{5}{8}$ in.; tread of rims, $1\frac{1}{2}$ in.; depth of bands, front, $3\frac{1}{2}$ in.; back, 1 in.; distance between centre of axles, 6 ft. 10 in.

Dimensions of ironwork—Springs: Front, 38 in. long between centres of heads, with $7\frac{1}{2}$ in. opening on main leaf; width of steel, 2 in.; number of plates, 4; thickness, No. 3 steel; back, 40 in. long, with 8 in. opening on main leaf; width of steel, 2 in.; number of plates, 4; thickness, No. 3 steel; back cross, 42 in. long, with 4 in. set on main leaf; number of plates, 4; thickness, No. 3 steel; axles, front, $1\frac{1}{2}$ in.; rear, $1\frac{3}{8}$ in.; tires, $1\frac{1}{2}$ in., solid rubber; double fifth wheel, 18 in. and 24 in. diam.; kingbolt, 3 in. forward of centre; track, outside, front 4 ft.; rear, 4 ft. 9 in.

Painting—Body, black, no striping; gear, black, no striping; trimming, dull finish soft morocco, in small diamond squabs on cushions, back and quarter squabs, and door lining, cloth upper quarters. A storm umbrella is secured under the fall to the boot, its length being such as to allow the handle, a knotted knob, to project two inches beyond the boot panel; the top end has a ring instead of a ferrule, which projects beyond the panel on the right side. Finish, lamps, rails, etc., black.

MILK WAGON.

Scale, $\frac{1}{2}$ in. to the foot.

(See Fashion Plate No. 538.)

FASHION PLATE No. 538 illustrates a straight sill Milk Wagon of convenient proportions, having a straight sill and hung upon platform gear front and coach springs at the rear. The main portion of the body is made in imitation of the "Express" body, the champered moldings being nailed to the panel. There is nothing, however, to prevent framing the slats and making up the same as with the best express. The upper panels are plain; the lights in the front stationary. The cash drawer is under the rear seat, under which there is also ample space for bottles full or empty. The large lamps add to the appearance and contribute to the comfort and safety of the driver during his night work.

Dimensions of woodwork—Body: Length over all, 7 ft. 1 in.; width across outside, 3 ft. 10 in. Wheels: wood hub; height, front, 36 in.; rear, 51 in.; hubs, length, 8 in. diam.; at centre, 6 in.; front end, 4 in.; back end, $4\frac{3}{4}$ in.; size of spokes, $1\frac{5}{8}$ in.; number of spokes, 12 and 14; stagger, $\frac{1}{4}$ in.; depth of rims, $1\frac{3}{4}$ in.; tread of rims, $1\frac{5}{8}$ in.; depth of bands, front, $3\frac{1}{2}$ in.; back, 1 in.; distance between centre of axles, 59 in.

Dimensions of ironwork—Springs: Front, 36 in. long between centres of heads, with 5 in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 7; thickness, No. 2 steel; front cross, 40 in. long, with $4\frac{1}{2}$ in. set; number of plates, 8; thickness, No. 2 steel; back, 36 in. long, with 9 in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 7; thickness, No. 2 steel; back cross, 40 in. long, with 5 in. set on main leaf; number of plates, 8; thickness, No. 2 steel; axles, $1\frac{5}{8}$ in.; tires, $1\frac{3}{4}$ in. by $\frac{1}{2}$ in.; fifth wheel, 24 in. diam.; track, outside, 4 ft. 8 in.

Painting—Body, upper, front and rear panels, cream yellow, striped blue; the lower small panels are vermilion, champers black; gear, cream yellow, striped black and fine lined with red; finish, the side handles and lamps are brass.

MAIL COLLECTOR'S WAGON.

Scale, $\frac{1}{2}$ in. to the foot.

(See Fashion Plate No. 539.)

FASHION PLATE No. 539 illustrates a U. S. mail wagon, of which the Abbott-Downing Co., of Concord, N. H., built a large number on contract with the United States postal authorities. They were built for collecting mail from the tall buildings in New York City and replaced the carts heretofore used. The design provides a seat for the collector, with steps sufficiently low to allow of easy access or exit. A speaking tube is provided, by which the collector can communicate with the driver when giving instructions as to course, or for any other purpose. The side lights at the front drop. The rear extension is provided with curtains for use in stormy weather.

Dimensions of woodwork—Body: Length over all, 10 ft. 6 in.; width across outside, 3 ft. 8 in. Wheels: Sarven patent; height, front, 36 in.; rear, 50 in.; hubs, length, 8 in.; diam. at flange, 7 in.; front end, 3 in.; back end, $3\frac{1}{2}$ in.; size of spokes, $1\frac{5}{8}$ in.; number of spokes, 16 and 18; depth of rims, $1\frac{3}{4}$ in.; tread of rims, $1\frac{9}{16}$ in.;

depth of bands, front, 3 in.; distance between centre of axles, 6 ft. 4 in.

Dimensions of ironwork—Springs: Front, 38 in. long between centres of heads, with $4\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 5; thickness, No. 3 steel; front cross, 41 in. long, with $4\frac{1}{2}$ in. set; number of plates, 6; thickness, No. 3 steel; back, 38 in. long, with 3 in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 6; thickness, No. 3 steel; back cross, 4 in. long, with 3 in. set on main leaf; number of plates, 7; thickness, No. 3 steel; axles, front, $1\frac{3}{8}$ in.; rear, $1\frac{1}{2}$ in.; tires, $1\frac{5}{8}$ in. by $\frac{3}{8}$ in.; fifth wheel, 24 in. diam.; track, outside, front and rear, 5 ft.

Painting—Body, the panels above the belt on sides and back, carmine; the belt panels white and the lower panels blue. The striping on blue and red panels in gold; on the white panels in red. Gear, yellow, striped with a $\frac{1}{4}$ in. line of red and fine lined with blue. Trimming: The driver's cushion is tufted, while the quarters and back are plain, as are the rear cushion and quarters. The seat is hinged at the rear, allowing it to be raised when required.

LANDAU FOR CHINESE PRINCE TSCHUN.

(For Illustration see "Latest Styles.")

PLATE CLXXXV. This plate illustrates a landau built by the Quhlstein Wagonbau, Charlottenburg (Berlin), Germany, for the Chinese Prince Tschun. The builders rank among the leading builders of the German empire.

SPEEDING WAGON.

(For Illustration see "Latest Styles.")

PLATE CLXXXVI illustrates a road rig owned by a millionaire at Manitowoc, Wis. The carriage is No. 510 speed wagon, built by the Watertown Carriage Co., of Watertown, N. Y., and is an ideal vehicle of its class.

PNEUMATIC WITH CHILD'S SEAT.

(For Illustration see "Latest Styles.")

PLATE CLXXXVII illustrates a pneumatic fitted with Hutton's child's seat, manufactured by G. H. Hutton & Co., Baltimore, Md. This seat can be turned forward completely under the front seat, without interfering with the latter; or it may be taken out when turned partly forward. The irons that support this seat are of special construction and can be fitted to various styles of bodies. This extra seat adds but little to the cost of the carriage, but it furnishes an excellent seat for children and should therefore become popular.

STANHOPE GIG.

(For Illustration see "Latest Styles.")

PLATE CLXXXVIII illustrates an ideal turnout of the gig class. The breast collar harness is now recognized as proper style.

SHETLAND PONY AND CART.

(For Illustration see "Latest Styles.")

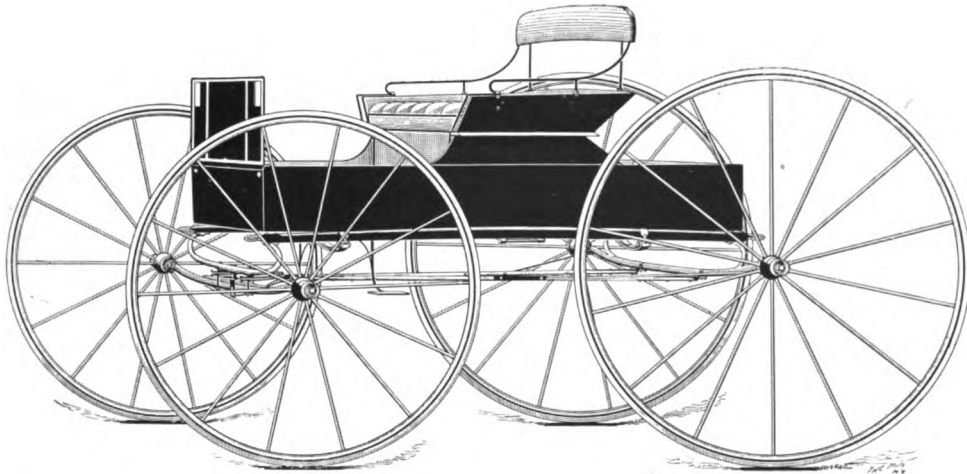
PLATE CLXXXIX illustrates Mrs. Wentworth Hope, of Edenbridge, Kent, England, and her Shetland pony and cart. This lady showed a number of her Shetland ponies at the New York Horse Show last month.

FOUR-IN-HAND AND BREAK.

(For Illustration see "Latest Styles.")

PLATE CLXL. The break shown has become one of the most popular of our four-in-hand rigs. The gear is the full mail coach. The body is fitted with a second cross seat, placed on a movable deck on the front end of the body, reducing the side seat capacity to six passengers.

Latest Styles. December, 1901

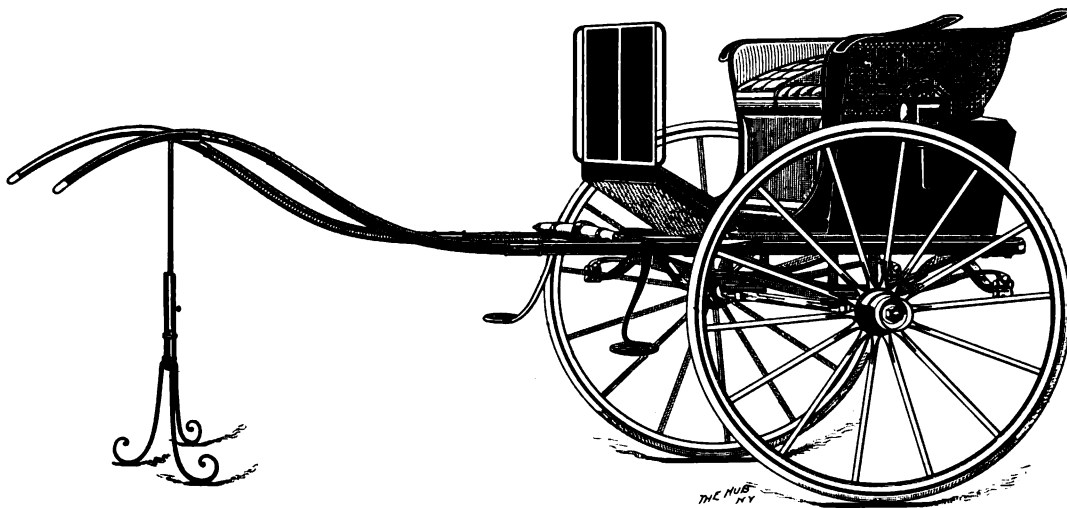


No. 534. Brewster Runabout.

SCALE, $\frac{1}{2}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$1.50.)

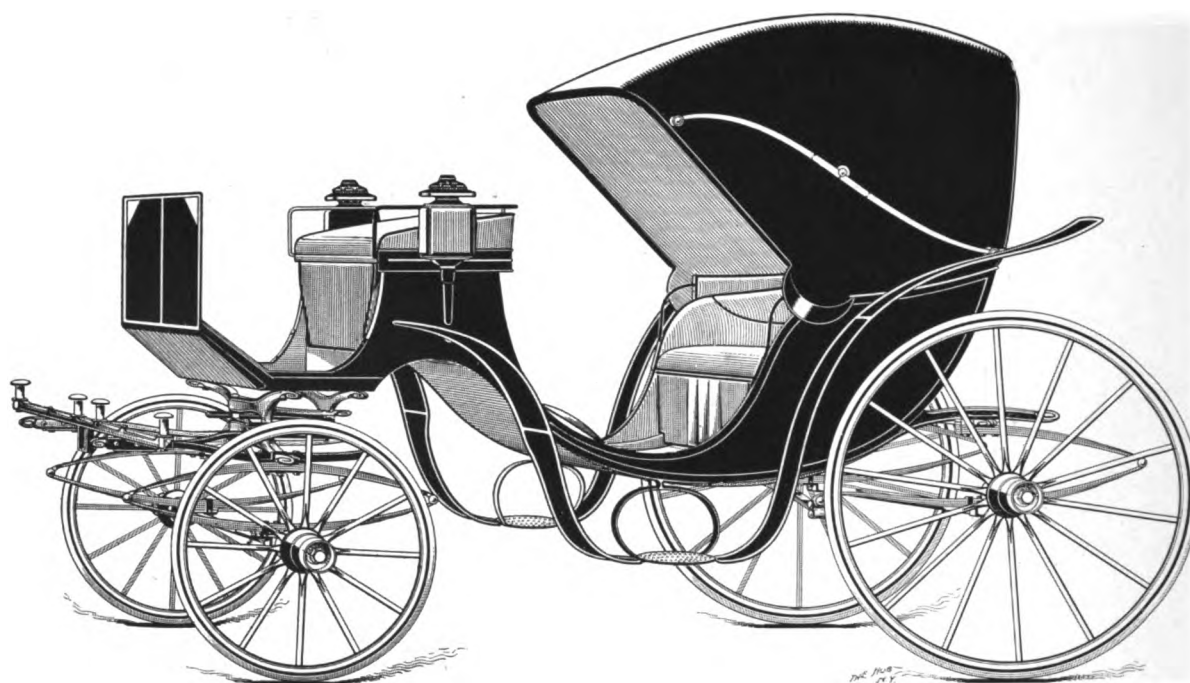


No. 535. Stanhope Gig.

SCALE, $\frac{1}{2}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$1.50.)

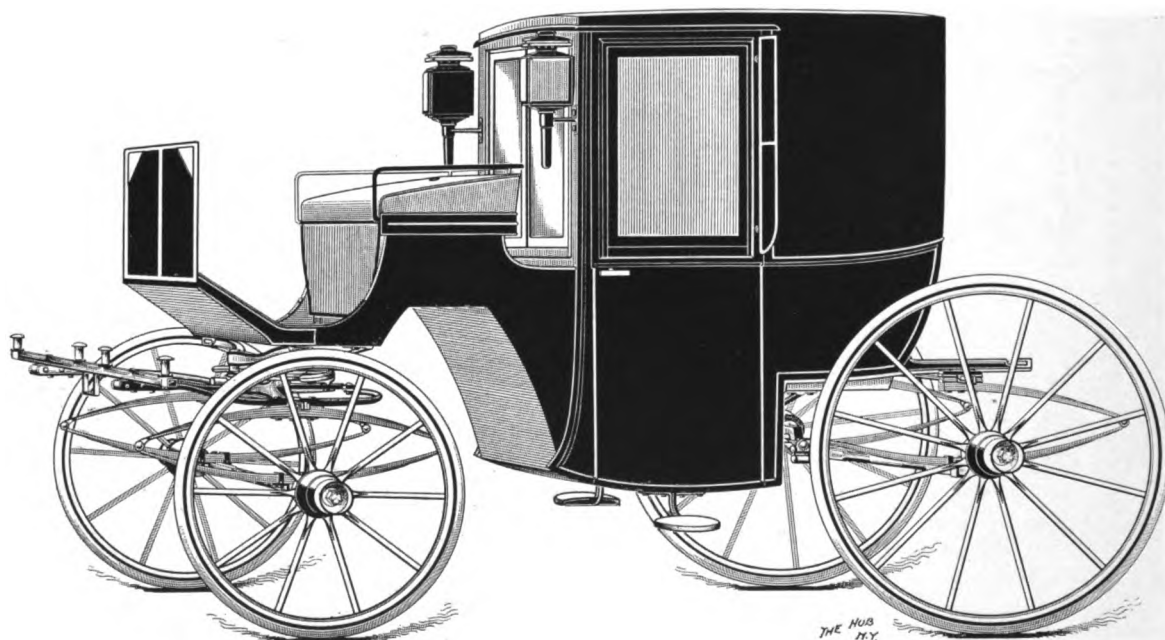


No. 536. Cabriolet.

SCALE, $\frac{1}{2}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$2.00.)

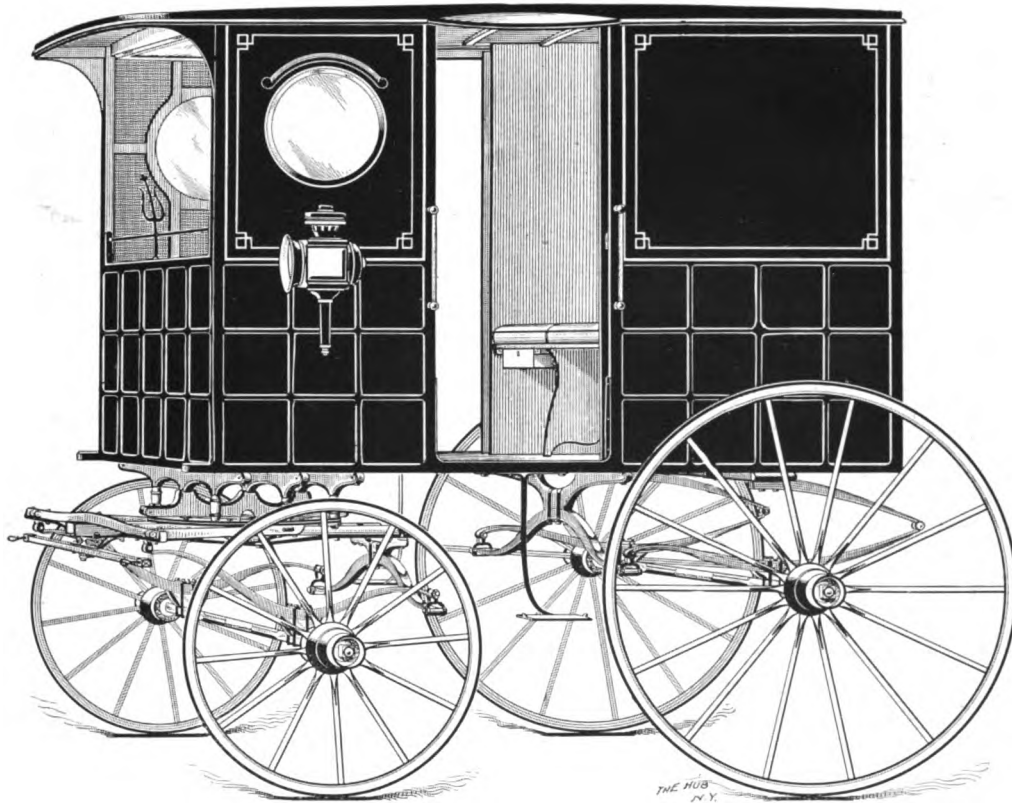


No. 537. 1901 and 1902 Brougham.

SCALE, $\frac{1}{2}$ INCH TO THE FOOT.

See description under "Latest Styles."

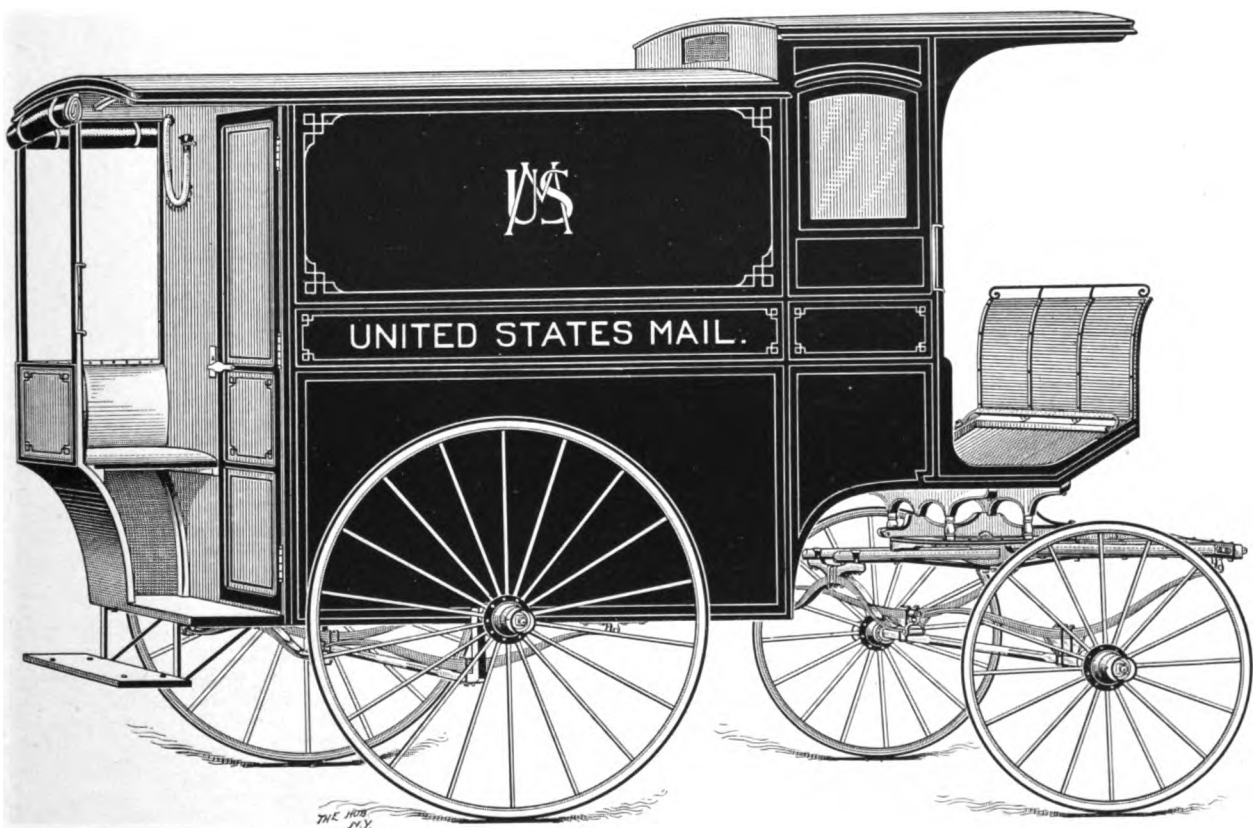
(Electrotype, \$2.00.)



No. 538. Milk Wagon.

SCALE, 1/2 INCH TO THE FOOT.

See description under "Latest Styles."
(Electrotype, \$2.00.)



No. 539 Mail Collector's Wagon.

SCALE, 1/2 INCH TO THE FOOT.

See description under "Latest Styles."
(Electrotype, \$2.00.)



Plate CLXXXV

Landau for
Chinese Prince Tschun.

See description under "Latest Styles."



Plate CLXXXVI.

Watertown Carriage Co.'s
Speeding Wagon.

See description under "Latest Styles."

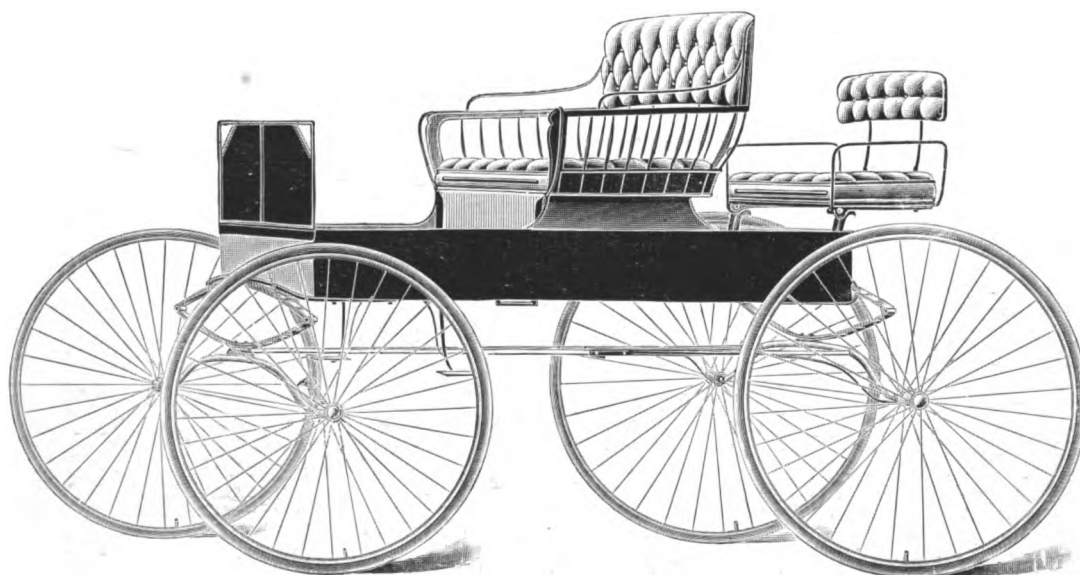


Plate CLXXXVII.

Square Box Buggy
With Patented Child's Seat.

See description under "Latest Styles."

Plate CLXXXVIII.

Stanhope Gtg.

See description under "Latest Styles."

(Electrotype, \$2.00.)



Plate CLXXXIX.

Mrs. Wentworth Hope's
(Edenbridge, Kent, England)
Shetland Pony and Cart.

See description under "Latest Styles."

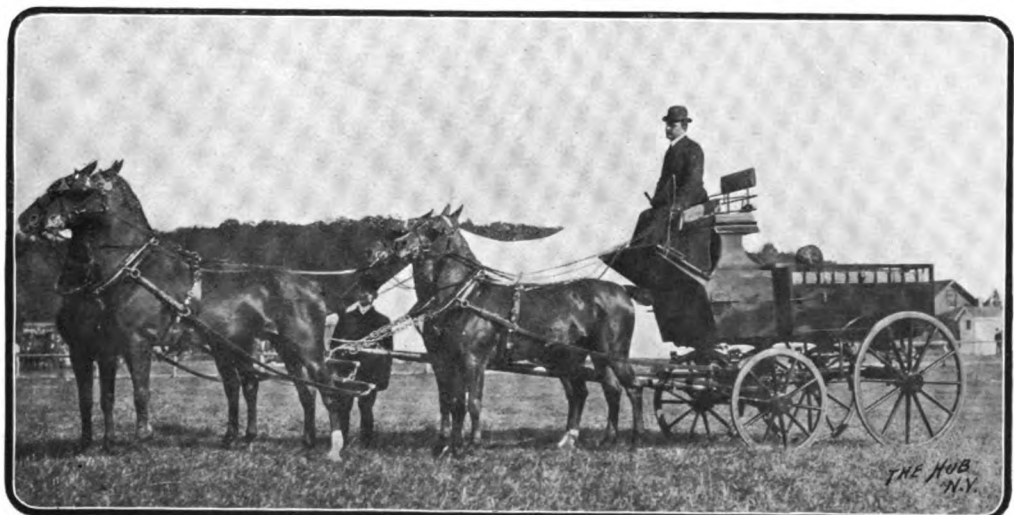
(Electrotype, \$2.00.)

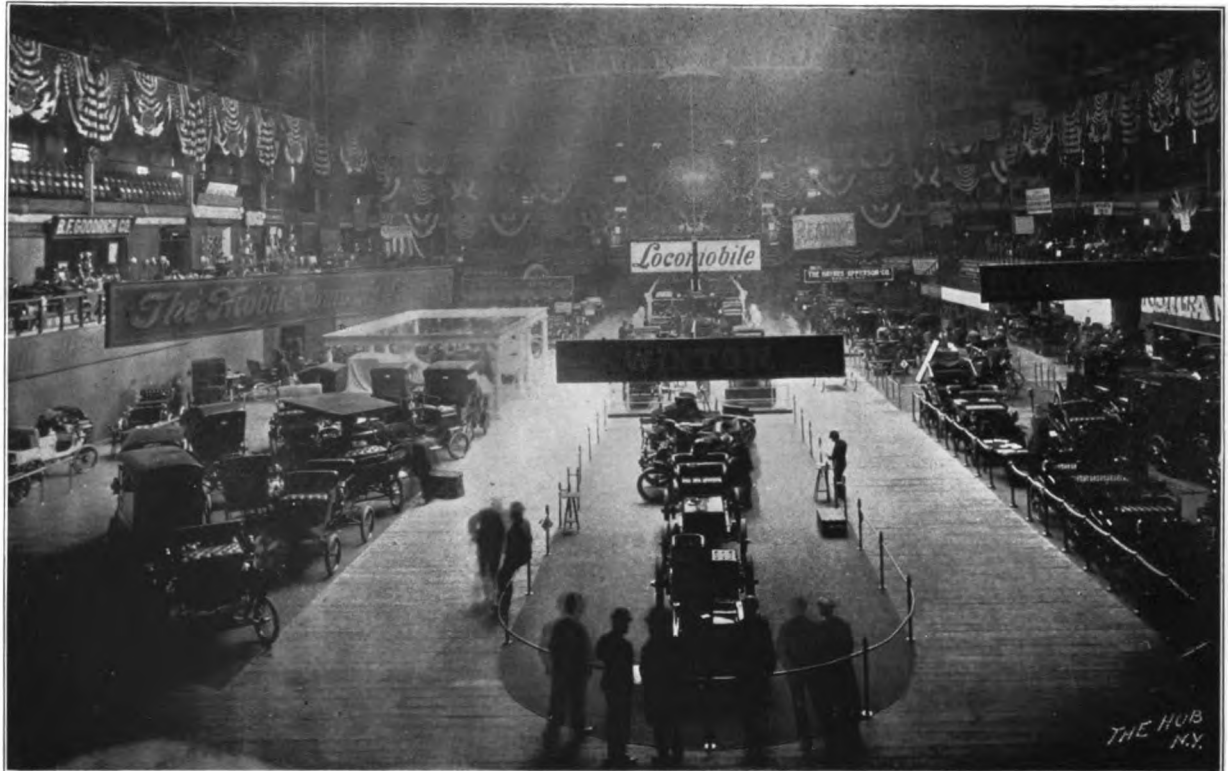
Plate CLXL.

Four-in-Hand and Break.

See description under "Latest Styles."

(Electrotype, \$2.00.)





General View from Madison Avenue Entrance.



View of the North Side of the Garden.

Automobile Show at Madison Square Garden, New York, November, 1901.

Stearns Steam Carriage Co.'s Booth.
For description, see "Automobile Department."



Milwaukee Automobile Co.'s Booth.
For description, see "Automobile Department."

Lane Motor Vehicle Co.'s Booth.
For description, see "Automobile Department."

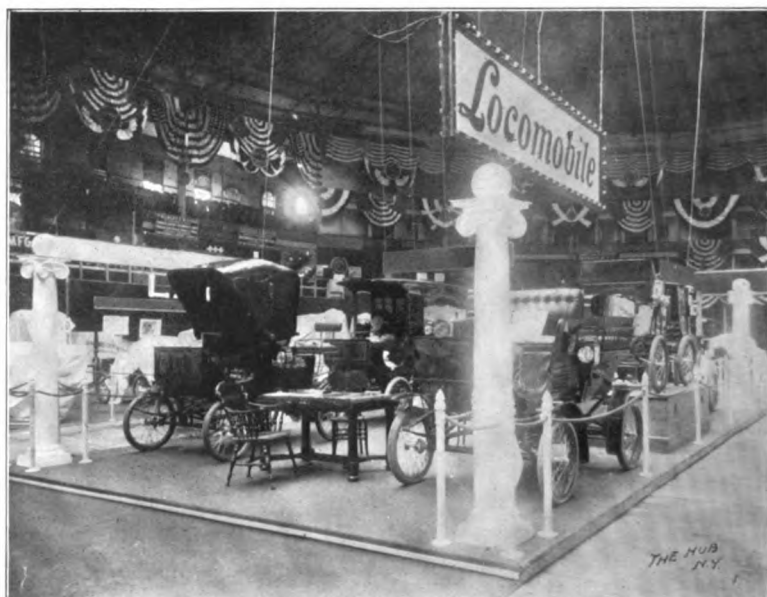


Exhibits at Madison Square Garden Automobile Show.



Crest Manufacturing Co.'s Booth.

For description, see "Automobile Department."



Locomobile Co.'s Booth.

For description, see "Automobile Department."



Anna Held and Her Waverley Electric.

For description, see "Automobile Department."

Automobiles at Madison Square Garden Automobile Show.



Ohio Automobile Co.'s Booth.

For description, see "Automobile Department."

Steamobile Booth.

For description, see "Automobile Department."



Knox Automobile Co.'s Booth.

For description, see "Automobile Department."



Overman Automobile Co.'s Booth.

For description, see "Automobile Department."



Exhibits at Madison Square Garden Automobile Show.

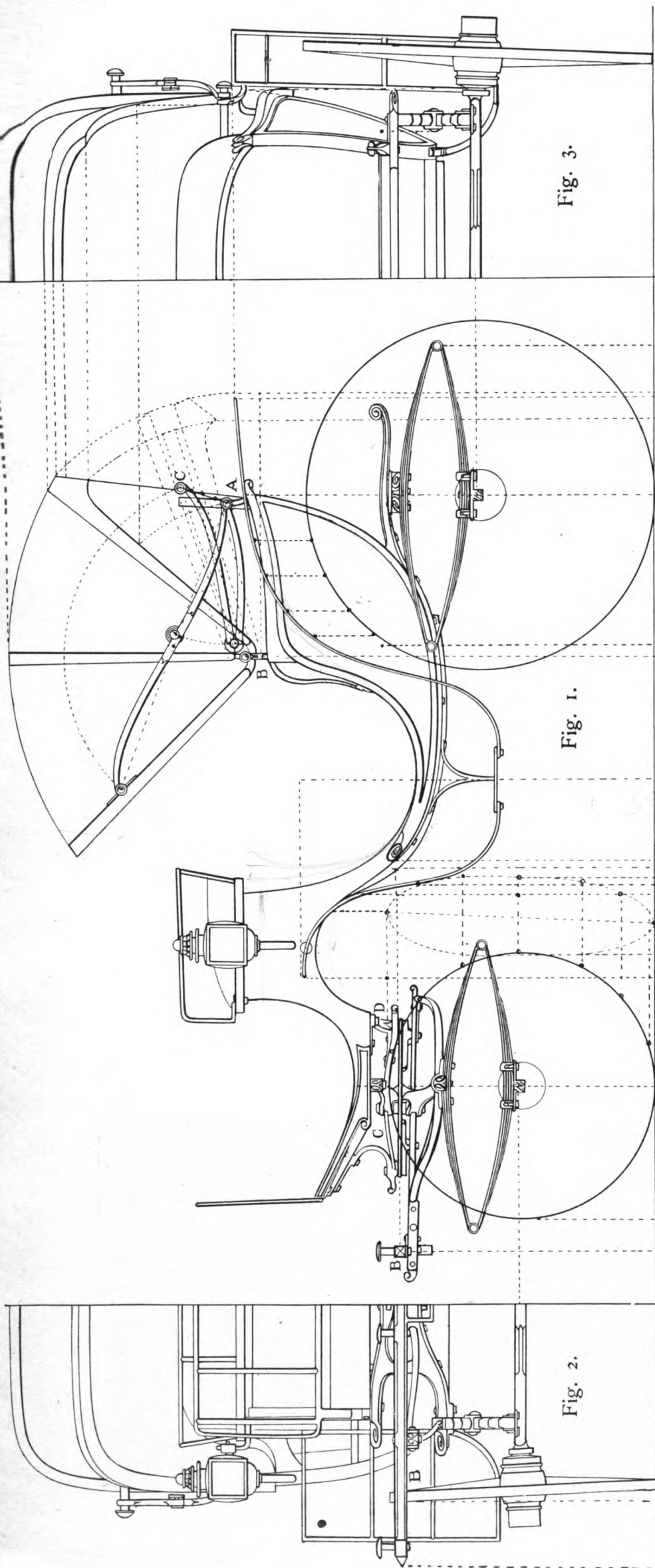


Fig. 2.

Fig. 1.

Fig. 3.

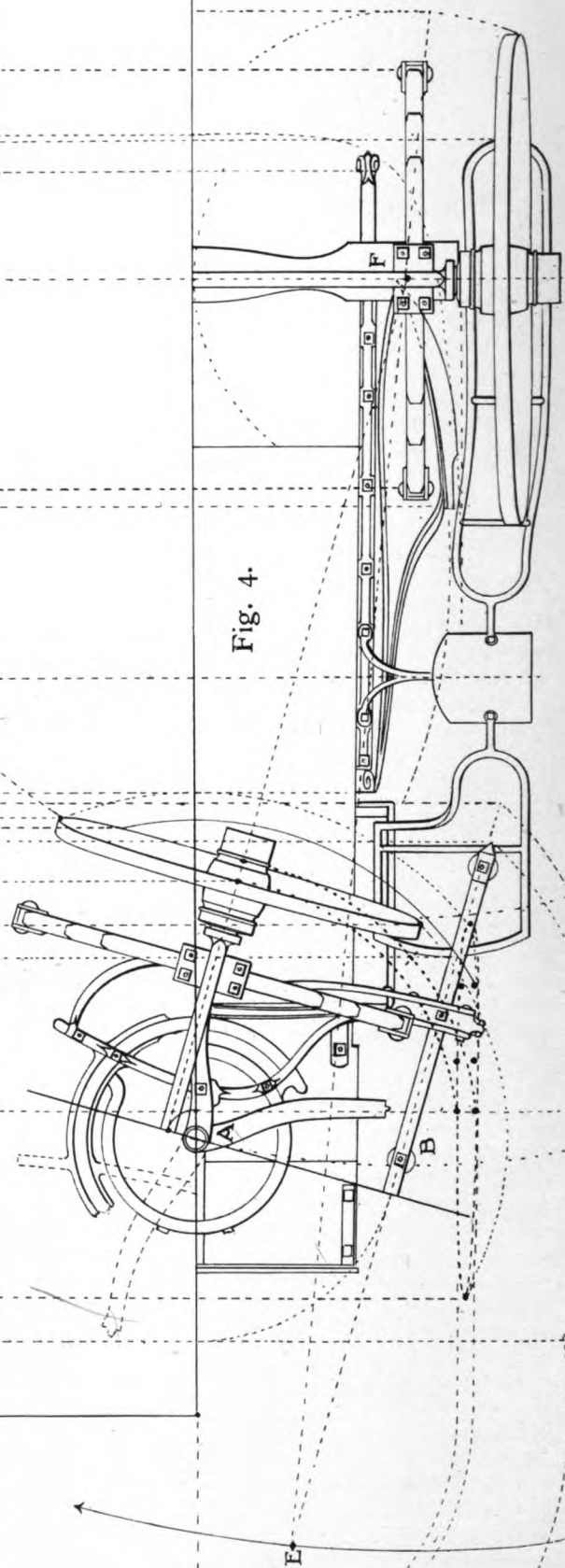


Fig. 4.

WORKING DRAWING
OF MINIATURE CABRIOLET.
SCALE, $\frac{3}{4}$ INCH TO THE FOOT.

CARRIAGE TECHNICAL DEPARTMENT.

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**Comprising the Wood, Smith, Paint and Trimming Shops.**

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WORKING DRAWINGS OF A MINIATURE CABRIOLET.

Scale, $\frac{3}{4}$ in. to the foot.

AFTER we have made the drawing of our cabriolet we place it on an easel in front of us and in close proximity to the eye, in the vertical position of the finished carriage, and proceed to write out an explanation of the design, dimensions and projections on the several planes of the level surface of the paper, beginning with the side view of the carriage. Every student of the HUB's working drawings of the suspension of carriages, knows that the boot of the body cannot be located in an intelligent manner until the lock of the front wheel has been decided in plan as derived, first, from the wheel's position in the side, Fig. 1; second, its inclination or swing, as drawn in the front elevation, Fig. 2. When we know the passage of the wheel, to a full lock, we can proceed to draw the boot, the toe bracket and the front gear, all of which must be done before we begin to design the outlines. By this way we can locate the gear, so that it will not be too far ahead or back of the position which it should have to give it an attractive poise. By proceeding in this workman-like manner we are in a position to draw the front wing to connect with the step and the rear wing, called by automobile builders "mud guards." In this they are drawn as they really are, an iron frame, made of $\frac{5}{8}$ in. oval iron, these wings curving equally each side of the step, outline the entrance way to the rear seat. They protect the interior of the carriage, as well as the clothing of the rider, from the rim of the wheels in getting in or out of the carriage.

The aim of this drawing is, first, to show the design and dimensions of a small cabriolet; second, to show the construction of the suspension; third, to illustrate by projection, the science of the methods employed in avoiding the interference of the movable parts with the fixed parts, of either the under carriage, or the body, the bows, or the side joints. When any portion of the carriage is moved from one position to another, the space in which it moves must be clear of obstruction, no other part, either fixed or movable must be allowed to interfere. The circle and the square are the operative figures with which we calculate the trace of its movements in space, by these we can prove the limit of their travel, and the solution of the problem and the result. To do this satisfactorily, the knowledge of the science of projection must first be understood, and that which relates directly to carriage building cannot be learned in college, neither can it be learned by the study of geometry. Yet no man will deny that the art of drawing the carriage in its several elevations is a science which, to master, must be studied, and it is so important to the progress of the art, that schools have been established especially for the instruction in the principles of scientific coach building, and that is precisely the point which we have reached now in our explanation of the drawings of the suspension of a miniature cabriolet.

The point A, Fig. 4, is a center about which the lower half of the front gear will turn. In turning, the springs, axles, futchells, drawbar, wheels and lower coach bed, all describe a circle in plan, the drawbar B determines the degree of the lock of the front carriage, and the amount of space necessary in which to turn the carriage around, the end of which must stop short of touching the front wing, the stop lugs on the fifth wheel plate must be set to strike a corresponding lug on the lower coach bed plate, which extends beyond the edge of the wheel plate for this purpose. It is therefore located on the drawing, as the lugs must be forged onto the wheel plate, as well as to the end of the top plate of the bottom coach bed, as the single plate of the fifth wheel is stationary and fixed to the top coach bed, and to the iron outer bar, C, Fig. 1, and also to the

horn bar D, which, at the rear, is bolted to the nutter-bar C, and the plate of the fifth wheel, which is made up with two circles, the larger one of the two being determined by the amount which the kingbolt A, is set ahead of the vertical plane of the front axle, namely, $2\frac{1}{2}$ in., so that the balance is as perfect as though the kingbolt was directly over the axle, but this balance refers only to the stability of the gear's poise when the carriage is moving in a straight direction. When we have discovered the limit to which we can turn the end of the drawbar B, Figs. 1, 2 and 4, we can fix upon the plan, the center and direction of the front axle, onto which we can then establish the drawing of the wheel, as inclined in the elevation, Fig. 2. Here the axle is parallel to the direction of the drawbar B. A line prolonged from its center parallel to the trace of the drawbar until it cuts the center line of the rear axle, will be the point of intersection, will be the pivot, so to comprehend, upon which the whole carriage will revolve, defining the space in which the carriage can be turned around, as measured from E to F, Fig. 4, to be 11 feet 6 inches, or 23 feet (in the shop we use a string instead of a line) which amounts to the same result. It is only necessary to point out to the attention of the reader, without mentioning each point on the periphery of the rim of the front wheel, that we first station them in the side, second, in the front elevation, and from these two determine their projection in plan, and then swing each point of the wheel to a full lock, and from this obtained position in plan carry up to the side, Fig. 1, until the vertical lines meet the horizontal lines, drawn from the rim of the wheel, as shown in the position of the wheel on the side. If we pass a trace through the points of projection we will then discover the position of the wheel as locked under the archway of the boot, and can thus determine the space required for the jounce of the springs between the top of the wheel and the panel of the arch of the boot.

When we mount the rear end of the body on elliptic springs, we must provide room between the spring heads and the panels, we must allow sufficient space for the settling of the body, which, under weight, approaches nearer to the head of spring; if the body settles 3 in., the spring head will settle $1\frac{1}{2}$ in. at the same time. That is the principle on which we must make our calculation. The turnunder of the side panel is of course the cause that will bring about a collision with the spring, if sufficient room is not allowed for the jounce. In the suspension of the end of the body, a cross bar is bolted to the springs, the iron pump handle is set on top of the bar. Soldered to the pump-handle is a plate wide enough to extend out over the spring through which the bolts pass. We have set this bar back of the center of the vertical plane of the axle $\frac{3}{4}$ in., which gives a trifle more room for the turn of the pump-handle. The front head of the spring is higher than the back. This carries the center bolt of the top half of the spring $\frac{1}{4}$ in. further away, and is thus placed in opposition to the stress on the spring from pulling the wheel over the road.

To set a three bow top correctly, and in a workman-like manner, is to first draw the bow in the side elevation as to height and pitch, over the back of the body, then set the front as far forward as the room on the boat seat will allow, and $2\frac{1}{2}$ in. lower than the back bow, which is sufficient to obtain the desired effect. From these two points, with the dividers fixed, the center upon which the bows pivot, called the "goose neck," then the front and back bows will be, when the top is closed, of the same length as we show in the side elevation, with the bows thrown back upon the props. We wish in this drawing to set the prop iron, A, Fig. 1, at the elbow of the body, as far from the goose neck, B, as we conveniently can, so as to give as much slant to the side joint as possible; we also desire to set the prop above the goose neck, so as to obtain the best position for the

bows when closed down, and also the best position for the side joint when closed, all of which is plainly shown on the drawing of the top. To find the top end of the side joint on the front bow set this point back of that of the prop iron, and not over it, or forward of the lower end. We do this to obtain a rakish appearance to the folded top, between the two props, A and C. We draw a line, which we divide into four parts. Between the two props, when the top is spread, draw a straight dotted line, which find the center. From this obtained center, set off towards the elbow prop, the space of one of the divisions of the line A, C; this obtained point is the center of the knuckle. Then, with the point A as center, and the point of knuckle as distance, describe the curve along which the knuckle will move, when the top is folded back. The curve which the lower section of the side joint should have, is one parallel to that of the false arm, so that when the top is folded back, the joint will fall into the best possible position as illustrated in full lines.

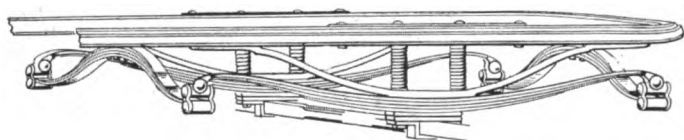
The dimensions of this cabriolet are: Length of body, 7 ft. 4 in.; width of bow, 48 in.; width at elbow, 36 in.; at dash, 28 in.; the body is mounted to a height of 36 in. at the front, and 26 in. to the bottom of rocker at the rear; height from the lowest point of rocker at the rear to the top of seat frame of the boot, 27 in.; at the elbow, 25 in.; distance between seats, 27 in.; distance between center of the front and rear wheels, 6 ft. 2 in.; track front, 46 in.; rear, 56 in.; height of front wheel, 33 in.; rear wheel, 44 in.; front spring, 36 in. long, 9 in. high, $1\frac{1}{2}$ in. wide; 4 plates; gauge of steel is for the main plate No. 2, the other plates, Nos. 3, 3, and 4; rear spring, 39 in. long, 9 in. high, $1\frac{1}{2}$ in. wide; 4 plates; gauge of steel, Nos. 2, 2, 3, and 4. Axles, full Collinge, $1\frac{1}{4}$ in. for 7 in. hub; spread of solid forged spring flaps, front, 32 in.; outside, rear, 41 in.; outside, size of hub, front, 7 in. long, $5\frac{3}{4}$ in. diameter; size of spokes, $1\frac{1}{4}$ in.; number of spokes, 10; rear hub, 7 by 6 in.; size of spoke, $1\frac{5}{16}$ in.; number of spokes, 12; front bands, $\frac{3}{4}$ by 2 in.; back bands, 5 by $\frac{7}{8}$ in.; front fifth wheel, 17 in. diameter; rear circle, 22.; height of gear, 9 in.

WHAT IS A STANHOPE GIG.

CRITICISM BY AN ENGLISH DRAUGHTSMAN.

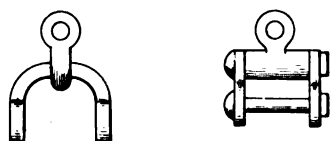
To the Editor of THE HUB:

Dear Sir—I notice two drawings in the August HUB as having been drawn expressly for THE HUB by an experienced English draughtsman. These were entered in the coachmakers' and coach harness makers' competition, Nos. 1 and 2, by a student under twenty-one, and exhibited at the room of the Baker street bazaar, and seen there by myself and hundreds of others, and as I know were



"STANHOPE" PLATFORM.

taken notice of for their unfashionableness. As the work of a student without practical knowledge the Stanhope gig, which is not a Stanhope at all, is passable; but as the work of an experienced draughtsman cannot be passed over without notice. A "Stanhope" gig is a gig hung in a particular manner, the body being hung upon two cross springs, which are connected by pipe shackles and hangers to two sides, these being bolted to the axle direct. The shafts are framed rigid and connected by block and supported with stays to the axle direct, being held in place by the same bolts, which connect the springs to the axle. A "Stanhope gig" is as distinctive a name as a



SHACKLES.

"Tilbury" gig, or "Gerst" gig, or "Dennett" gig. All are names denoting certain specified hanging ups and connecting of the carriage part and the body, which are all of one pattern, the "Tilbury" being without a boot. Modifications of the various hangings are prevalent all over the country, and can truthfully be described as modified so and so; in addition, all cross spring hanging should be connected by either close Dee shackles or pipe and hanger. The object of this

will be seen when you examine the Stanhope gig drawing. THE HUB has such a high reputation as a reliable guide that correspondents should be careful in sending you information. One may fall into error, but deliberate misstatement of facts, which are within one's knowledge, are inexcusable.

A NEW DEPARTURE IN SHIFTING TOP RAILS.

THE shifting top rail was invented and first made by A. Manee, a carriage and wagon builder at 126 East Broadway, New York, in 1850, at which place the writer was an apprentice.

The manner of making at that time was about as follows, using one-half inch round iron throughout: For the front prop, a head was formed, hole punched in and a piece of half-inch bound iron long enough to take the slat irons and prop nut included in the same. The front and back pins were then put on, either by splitting the pins and wrapping the ends around the side piece, or by upsetting, punching a hole in the side piece, and inserting the pin. In either case the welding part was done in the T swage. When both sides

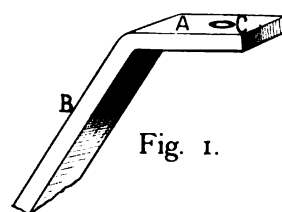


Fig. 1.

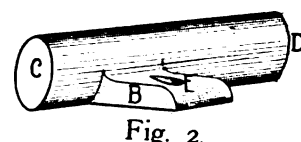


Fig. 2.

were thus prepared, the back in two pieces, one piece with one pin, the other with two pins. The back piece at that time had three pins. The back pieces were placed, after the threads were cut, on all the pins and wrapping the ends around the side piece, or by upsetting, were then placed and measured for cutting off. They were then molded on to the back pieces in turn. The ends of the back piece for forming the back prop, were cut off to the proper length, nuts fitted and then the rail was welded at the back, cleaned off and given to the trimmer. The rail was wound with listing. Finishing beyond drilling the knob holes for the curtain, on the back, was not in line at that time.

The improvements have been few. Stivers made it oval, with the present front and back prop. Dusenbury & Vandusen made the half collar on the rail pins, and left out the center pin. The writer left off the two back pins on the side rail, leaving only four pins. Some time before this Miner & Stevens put on the lazy back and there it rested. Some few patented articles have been put before the trade, but were too void of usefulness and practicability to stay.

Fifty years' use is a fairly good guarantee that it will last many years more if the buggy or light wagon, under its many and various forms and nomenclature, continue to remain with us, which it no doubt will, the shifting top with its rail will also remain with us.

The rail of to-day, as compared with the rail of the beginning, is a thing of beauty, elegance and economy, and yet we have not reached perfection. Today if a pin is broken, or its thread stripped, or one of the point prop pins broken, which not infrequently occurs, every carriage smith, finisher or trimmer, knows how great the annoyance is and how unpleasant the labor it occasions. All these annoyances ought to be abated, or an attempt made at least in that direction. A rail has been in use a few years which has a square hole for the pins. While this change is not without value, it is far from making the rail perfect or what is required. There is so little metal that there is no room for bolts that will not turn when setting up the nuts. The lack of metal at this point aids to produce what it was intended to prevent, viz., breaking at that point.

After a lapse of fifty-one years it falls to the person who helped make the first ones to now offer a valuable improvement of the same. An improvement which eliminates many of the heretofore objectionable features. The improvement being free to all makes it possible for any and all machine forgers of carriage goods to produce the same for the market, but in doing so it is but just to call it "The Mosier shifting rail."

Fig. 1 shows sections of plain seat iron; B, portion secured to seat. A, projection with hole; C, for top rail. For a point iron the handle can be formed on as usual. Fig. 2 shows an oval section of the rail, on which the lug or car, B, is joined solid, which rests on the seat iron as at A, Fig. 1. C shows an end of the oval; D, upper edge, and E, the hole (round) with a V, recess in same to pre-

vent turning of bolt. Fig. 3 shows a cross section of seat iron, shifting rail and securing bolt combined. A, outer section of seat iron; B, section of portion secured to seat; C, oval section of the rail; D, showing full face of cross section of the rail; H, base of the lug as resting on the seat iron; F, head of the securing bolt; G, stern of bolt with threaded section.

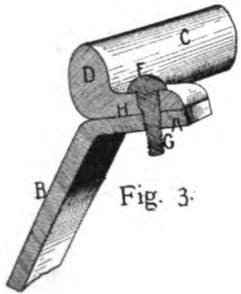


Fig. 3.

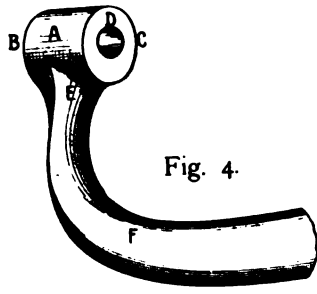


Fig. 4.

Fig. 4 shows the front prop; A, the head of the prop, dispensing with the collar and prop bolt, solid on same; B, inner end of the prop; C, outer end of the prop head, with the hole D for passage of the movable prop bolt; E, shows the beginning of the oval under the prop head; F, its continuation and curve. Fig. 5 is a section of the prop head, for the purpose of showing the inportion of the same, with hole square for insertion of bolt, to prevent it turning; A, section of prop head; B, inner end with square hole, C. Fig. 6 shows the bolt for front prop head; A, stern of same; B, head of the bolt.

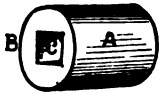


Fig. 5.

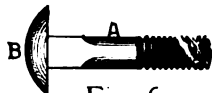


Fig. 6.

Make the oval section of the rail the same as heretofore; that is, in size. Let the lug start from the center of the oval, and make long enough to take 5/16 in. bolt, and wide enough for strength, just as wide as the seat iron, which ought to project 1/32 in. in all, or 1/64 in. on each side of the nut. Let the outer end be no thinner than the seat iron. Make the prop head from one inch long to as much longer as may be necessary in diameter to suit the dimension of the rail, 3/4 in. or more. Make the prop head bolt with square neck, and to fit fairly tight from 7/16 in. to as much larger as necessary. Lug bolts 5/16 in., leaving in one corner to prevent turning. As a matter of course the ordinary prop nut will answer.

There need be no changing or distances of seat irons, height of front prop, or disposition in any way of the back prop, lazy back or any other feature of the rail.

COMMENTS ON PAINTING.

Editor of THE HUB:

Dear Sir—It is indeed gratifying to note the interest that was manifested in Mr. C. A. Willey's talk before the C. B. N. A. at Cincinnati last month. I had almost begun to believe that the old painter, as well as his methods, were numbered with the lost arts, but I see they are still a matter of interest, if not as great a success as in days of yore. At this time serious obstacles confront the carriage manufacturers as regards paint and painters. It is either revert to the old and practical methods with practical hands, or keep along in the haphazard way which is anything but gratifying, and which is getting worse every year. I do not attempt to place the fault, however, but will say from personal observations that the painter is unjustly censured. The painting period has narrowed down to about eight months, oftener six. At the start the painter will have his work well in hand and doing satisfactory as regards looks and durability. In a few short weeks we are plunged in the midst of the busy season and are trying to handle and get out more work than we have room to handle advantageously and cannot get help; they are behind in the smith shop, or cannot get some material, to put the jobs in the paint shop as soon as they should be; but when they do come they leave there in a few days at the sacrifice of durability, looks and, I daresay, economy.

There was a time when the painter was taken into the confidence of the employer regarding material used, which was a benefit to the painter as well as employer, as the painter could tell what material was best suited for the work at hand. I have been in shops where the painters were struggling along with a cup of material,

and to stand and see them work I would form the idea that they had either mistaken their calling or had their hands in the pockets of their employers. But on inquiring into the matter I found out that they were good mechanics, but could not work satisfactorily, not having the material to get the good results they wished, and as a consequence they lost their mechanical pride. It is with their employer a matter of quantity, not quality. The question is, Who is responsible—the consumer, the manufacturer or the painter?

W. S. CROWE.

TRIMMING A BROUGHAM.

THE accompanying illustrations show one of the latest designs for trimming a brougham. In looking over the several illustrations accompanying this article, the eye will readily take in many new and pleasing points connected with each.

Before making any remarks about the making up of the several parts of lining, it will be necessary to refer to the kind of material to be used in the several designs, thus obviating the necessity of mentioning the cloths. The most desirable colors for this class of work are dark green or dark blue. These colors look best, match best, and wear best.

In Fig. 2 the diamonds to be in satin, the glass cover of goat skin, the gathered roll at the ends of the squab, goat skin. In Fig. 3 the diamonds are to be satin, the door pillar cover with three tufts is goat skin; the holders are broad lace and satin. The lower part of Fig. 3, goat skin. Fig. 4, entirely goat skin; as is also Fig. 5. There are two sizes of worsted tufts used, very small and large. Satin buttons are dispensed with, the small tufts taking their place.

Fig. 1. This design represents the rough lining laid off in diamonds with gathered roll for a border and a rosette in the centre. Draw sheeting or thick muslin over a suitable frame, sized over with a thin solution of ordinary paste. Lay off the border 2½ in. wide of

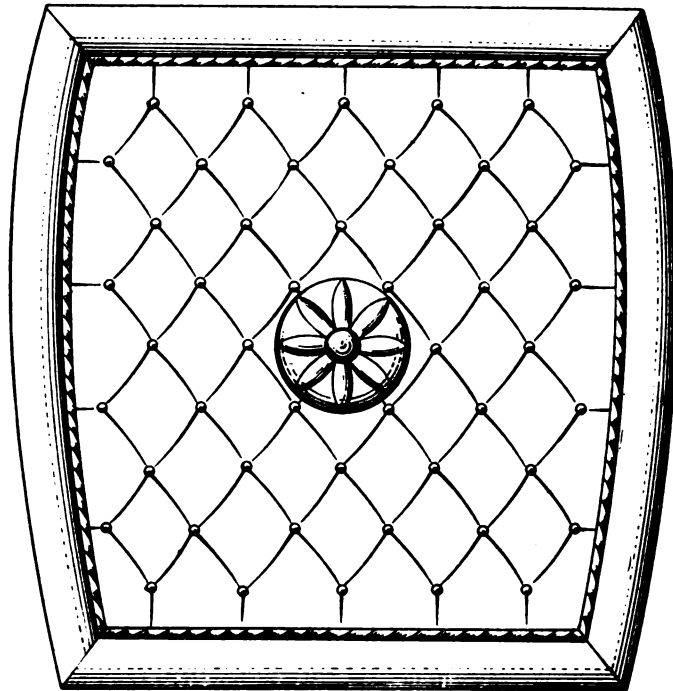


FIG. 1. TOP LINING.

the exact shape or sweep of the side rails. The diamonds are to be 5 by 4 in. Leave the center tuft in the squab, the rosette taking the place of the tuft. The diamonds to have 3/8 in. fullness each way between the tufts. The tuft lines can be creased with a hot iron, or stitched near the crease on the machine. Reinforce around the border and over each tuft mark with muslin or sheeting. For the amount of fullness in the satin it will require a close layer of hair surfaced with thick sheet wadding with the glazed parts taken off, or a thick layer of raw cotton. Use small tufts and fasten each tuft separately. Finish the edges of the squab with seaming lace, join the ends of the lace at one of the corners; cut the satin for the border four inches wide (the goods must be cut to match the grain of the squab). To get the length of the goods for the border allow one in. fullness on the side between the tuft lines on the squab, and three-quarters of an in. back and front. After the miters have been cut and sewed together work good drawing threads in on each side of the roll

and divide the fullness equally between the tuft lines along the seaming lace and sew down with back stitch. Fill the roll with cotton and allow a five-eighths in. margin to tack to the eve-rails. Put the rosette in place after the head lining has been tacked to the rails. The remainder of the work is left to the taste and good judgment of the trimmer to form this idea into a beautiful rough lining.

Fig. 2 represents the back quarter squab, the lay of rough lining in diamonds, 6 in. by $4\frac{1}{2}$ in.; the space for the end rolls to be $1\frac{1}{2}$ in. wide. The satin for the diamonds to have $\frac{1}{2}$ in. fullness each way

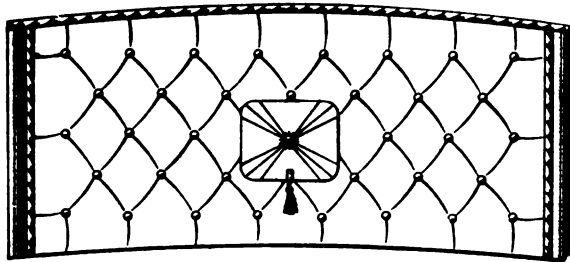


FIG. 2. BACK SQUAB.

between the tufts. Finish the inch edge of the rolls with seaming lace. Cut the goat skin for the rolls wide enough to form a roll at the corners of the squabs, and lap $\frac{1}{2}$ in. over the side quarter, with the edge of the roll sewed to the back of the squab. Allow one inch fullness between each tuft line in the length of the roll, and gather in with a good draw thread; work in on each edge. Make the foundation for the cover over the back light in the usual manner; confine the hair or wadding on the cover with muslin. Wet the goat skin cover on the flesh side and when about half dry lay it on a smooth board with face side up. Coat the grain surface over with tallow. Crease the design in with a broad edge tickler heated, but not enough to burn the grain of the leather. When the creasing has been neatly and thoroughly done lay the leather aside to let it get perfectly dry. Draw a large tuft in the center and finish the edge with a neat goat skin binding.

The crease work in the quarters and the doors is done in the same manner as in the glass cover. Fig. 3 represents the side quarter squab. Work the diamonds in the same manner as in Fig. 2. Block the door pillars for three and one-half in. space. Countersink pillars large enough to admit of the tufts being drawn close to the surface of the pillar. Put the side quarter squab in place first, so that the back squab can lap the edge of the side squab at the back pillar. Tack the side squab to the blocking on the door pillar, and edge with seaming lace, which will admit a three-inch space on the pillar. Blind tack a plain piece of goat skin to the seaming lace and line with sheet wadding. The goat skin must not be strained either way.

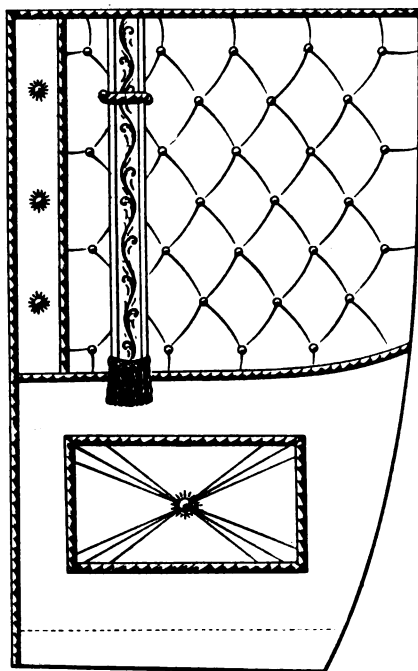


FIG. 3. SIDE QUARTER.

On the contrary, it should be full in a little. Finish the outer edge of the pillar with seaming and pasting lace. Secure the three large tufts to the pillar with concealed nails through the center of the tuft.

To do this first cut the eye from the tuft and point the nail through the center of the tuft, then drive the nail in place with a nail punch; make the swing holder of broad lace lined with satin. Fasten the holder to the side rail three inches from the seaming lace on the squab.

Make the lower part of the side quarters on a stiff rough lining. Block the body at the point where the two quarters meet; the block must be made to fit even with the door and back pillars and wide enough to tack the bottom to admit the tacking of the satin squab to it. Make other block for the lower quarter four inches wide, out of seven-eighths inch stuff, and shape it to fit the top rough lining. Bevel off the back and front ends to nothing; on the face side bevel the top edge off from the inner edge, leaving the edge one-quarter inch thick and rounded off. Cut the goat skin to cover the rough lining in two pieces, as shown in the illustration. Sew on the pasting lace around the crease part by hand, and then on the machine. Tack the rough lining to the block one inch from the edge. Trim the rough lining away from the tacks to a bevel, so as not to interfere with the finishing off of the top of the block, with seaming lace without cord, with a strip of goat skin sewn to one edge, tack the other edge along the edge of the block, turn over the lace with the leather

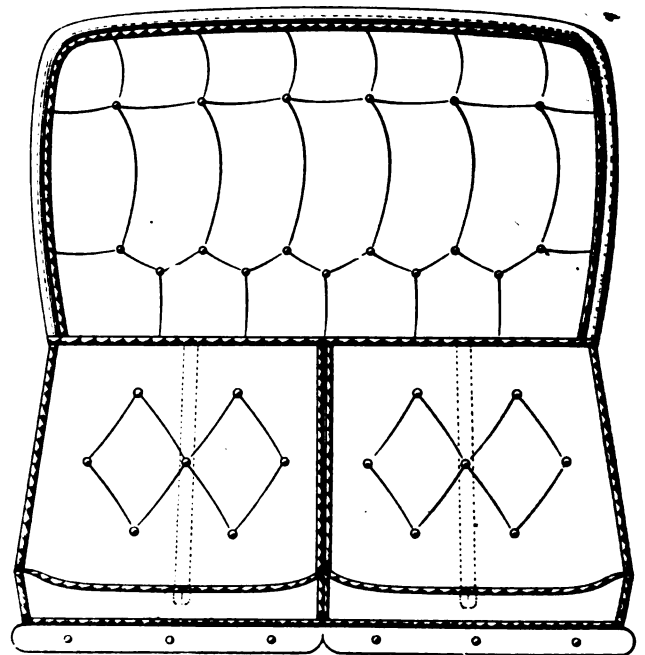


FIG. 4. BACK AND CUSHION.

strip, paste and tack it to the back of the block. Fasten the block with the quarter attached to the back and front pillars with suitable screws. The beveling off of the top part of the block from the inside is now explained, for it brings the two quarters flush with each other.

Fig. 4 illustrates very plainly the design for the back cushions, and seat valance, so far as the outside appearance goes; but there are several points about the work not shown that will require careful explaining in order that the reader may get a proper understanding of the working of the design. Draw good thick muslin or sheeting over a suitable frame for the back, reinforce each tuft mark, and around the border and along the bottom with pieces of the same goods. A correct pattern, the exact size and shape of the back, as shown, must be carefully taken, and the same marked off on the rough lining. Lay off the design for seven rolls, with narrow points at the bottom about one and a half inch wide, and four inches from the bottom to the first row of tufts (from the top of the cushion facing). The space from the top of the back to the upper row of tufts should be four inches. Lay off the space for the border for $1\frac{1}{2}$ in. space.

To lay off the goat skin for the back, $\frac{7}{8}$ in. fullness must be given to the width, and $\frac{5}{8}$ in. in the length. Give to the small points $\frac{1}{4}$ in. between the two lines of tufts. The quantity to allow to the edges is well understood. After the back has been tufted, care must be used while working up the edges of the back, the seaming lace attached to the roll will hide any irregular or loose place about the edges around the roll. Sew the seaming lace for the roll to a strip of thick dash leather cut $1\frac{1}{2}$ in. wide and the exact shape of the back, and sew the gathered roll to the seaming lace with a back stitch, the threads passing between the edge of the leather and the lace. Place

the leather strip evenly along the edge of the back and fasten to the rough lining with clinch tacks, placed $\frac{1}{2}$ in. from the edge. When the leather strip is neatly adjusted along the edge of the back, and securely fastened to the rough lining, the idea in sewing the lace to the leather strip is made apparent, i. e., getting the seaming lace near the surface of the back. Baste the seaming lace around the edge of the back, with a good thread and a long stitch. First make the stitches the entire length of the thread without drawing them up. Afterward, take up each stitch and so adjust as not to knit or interfere with the regularity of the lace. Fasten the top of the back to a block made for the purpose. Make the block of poplar $\frac{3}{8}$ in. thick, about $3\frac{1}{2}$ in. wide, and shape it to fit the top and sides of the back. To locate the exact place for the block nail a small cleat to the pillars at the bottom edge of the block, so when the back is ready to be placed in it is only necessary to rest the block on the cleats to locate the exact place for the back. Bevel off the edges of the block to a $\frac{1}{4}$ in. on the face side. Tack the back to the block and finish up the roll. In turning the roll over the edge allow some of the wadding to go with it so as to have the roll to pass loosely over the edge. Secure the back at the top with four suitable screws concealed under the edge of the seaming lace. If the above explanations to make the back are strictly adhered to, when the back is finished and put in place the outer edge of roll will rest evenly along the squab; work without seaming or pasting laces.

Slope out the front facing for the cushions along the top edge. Make the facings stiff; cover the face or front of the facings with sheet wadding; draw the goat skin loosely over the wadding and paste down on the sewing edge. No machine stitching on the facings. Join the front miters with seaming lace with small or thin cord. Lay off the tops for two diamonds without plaits; gather in the fullness around the edges with drawing thread. Allow the diamonds $\frac{3}{4}$ in. fullness each way between the tufts, and $\frac{1}{2}$ in. around the edges. Crease down the tuft lines in the diamonds on the flesh side, and stitch near the edge on the machine. Shape out the seat valance $2\frac{3}{4}$ in. wide, $1\frac{1}{2}$ in. thick, and bevel the edges or round them off. Countersink three holes into each, large enough to partly admit the large tuft. Cover the pieces with thick wadding. Cut the goat skin wide enough to paste under the bottom and over the top of the seat. Block the seat bottom and top thick enough for the width of the valance; draw the goat skin over loosely and finish up the ends. Fasten the valance to the seat front with a few brad nails. Paste the goat skin over the edges, and fasten the tufts in with concealed nails.

The valance has no seaming or pasting lace. Instead of a seat fall, a thin board is fitted in between bottom and the seat board, and between the rockers, made scant enough to tack carpet on the edges. Cut the carpet in two pieces, bind one of the center edges with goat skin, with the binding posted over on the carpet. Bind the other edge, but instead of pasting the binding on the carpet paste it on the board. Join the two pieces together at the center. Tack the top and bottom edges of the carpet to the board. Place sufficient hair from the end to form a soft pad, without large tuft drawn in at the center of the pad. Fasten the board in with screws.

Fig. 5 illustrates a beautiful and simple design for the door. Make a suitable rough lining of a piece of duck canvas and buckram, well pasted together, with paper pasted over the buckram. Tack the rough lining out close and let it remain until perfectly dry before it is used. Cut the rough lining to fit neatly to the outside edges of the door first, and then cut $\frac{1}{4}$ in. scant all around. Skew off the edges on the buckram side so as not to make a ridge under the pasting lace. Lay off the border $2\frac{1}{4}$ in. wide. The length of the crease part of the squab is regulated by the spacing of the diamonds in the lower part of the squab. These ought to be three tufts in length, 5 in. to 6 in. apart, and four tufts in width, 4 in. to 5 in. apart, but to divide the spaces properly depends very much on the length of the door, and the good judgment of the trimmer.

The goat skin for the diamonds must have $\frac{3}{8}$ in. fullness each way between the tufts. Crease the tuft lines on the flesh side and stitch near the edge on the machine. Place sufficient hair and wadding (with the glazed parts taken off) under the diamonds to work them up full, but not enough to strain the goat skin. Use small tufts to tuft the diamonds.

Work up the upper part of the squab on muslin. Fill the pad well with hair, but confine it to the thickness of the diamond squab. Put the cover for the pad through the same process as the glass cover and the side quarter squabs. Draw one of the large tufts through the center of the pad.

After the edges have been worked up and basted to the rough lining, make a band to connect the two parts of the door lining.

Make the band of goat skin, cut $2\frac{1}{4}$ in. wide, paste the flesh side and join the edges at the center and rub down crease the face side near the edge for stitching. Tack the band out to the sweep of the squab and allow it to dry. The space for the band on the rough lining must be made smooth before the band is placed on.

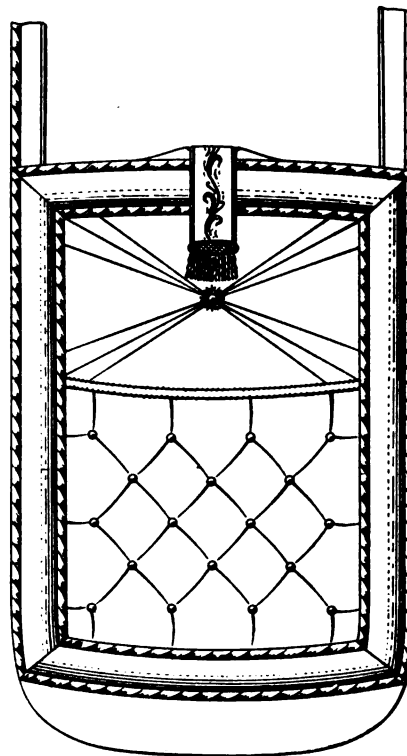


FIG. 5. DOOR.

Sew seaming lace around the squab, joining the ends at one of the lower corners. Cut the roll $3\frac{1}{2}$ in. wide, and to every 6 in. in length allow one inch fullness. The border can be cut in four pieces, and can be joined together so the splices will not be noticed. Before the squab is tacked to the door paste a layer of hair over the lining boards. Finish the edge of the door with seaming and pasting lace, seaming first and the pasting on the outer edge.

COLONEL JAMES H. SPRAGUE'S TRIBUTE TO THE MEMORY OF HIS PERSONAL FRIEND, THE MARTYRED M'KINLEY.

Reprinted from the *Norwalk Daily Reflector*.

A nation mourns another martyred son,
Summoned from life before his work was done.
Crushed to the earth by fell assassin blow,
Called by the Father, leaving us in woe;
High in the hall of fame a place well won,
Yet saying, "'tis God's way, His will be done."

In mourning are the nations of the earth;
Hushed are the sounds of gladness and of mirth;
The people's heads bow rev'rently low
And every home is filled again with woe,
As echoes round the world where shines the sun,
Those deathless words, "Good-bye," "His will be done."

The third to join our martyrs gone before—
"Angels to beckon" to fame's eternal shore;
There, from the trials of earth forever free,
Gently he prays, "Nearer, My God to Thee."
Seeing the dawn of Heaven's glorious sun,
His raptured soul exclaims, "His will be done."

Awaiting angels waft his soul away
Into the brightness of eternal day.
Gone is our nation's ruler, brother, friend,
But he has promised to be with us to the end;
With hearts bowed down and crushed, we can but say,
"Thy will be done," "Good-bye," "It is God's way."

Seventeenth Annual Show of the National Horse Show Association of America,

MADISON SQUARE GARDEN, NOVEMBER 18 TO 23, 1901.

THE Horse Show of 1901 will long stand as a record breaker when considered as a whole, and the question naturally arises, Has the horse improved in quality as the automobile enters the field of pleasure, or is it because of contrast—between the animate and inanimate—that the horse appears more beautiful? for certain it is the collection of beautiful horses was never before equaled at any of our horse shows. The would-be wit, he who speaks of the magnificently gowned women, as the central point of attraction, may gratify his nature by ventilating his views, but he cannot change the fact that the horse is king, and the array of feminine beauty and dress is a just tribute to the noble animal, a tribute that but does credit to heart and head of the fair sex. None would have it different. Nature lent a helping hand, fair skies and a bracing autumn air lent zest to the occasion, and aided, no doubt, to augment the attendance. New York contributed its great quota, but thousands of strangers thronged the Garden and enjoyed the rich treat. The carriage trade had many representatives from distant towns, all on the lookout for the newest features in standard carriages.

The various classes, light and heavy, showed less changes than common, excepting the speed wagons. With these there was a variety of gears, some without springs, others with springs at the rear end, and none in front. The low, square body predominated. The majority were neat and attractive. There was an occasional freak, but the consensus of opinion was that such departures from good taste were not desirable, and that the showing of them in the same ring with the plainer kinds evidenced their undesirability more pointedly than could be done in any other way.

Starting with the Brougham, the expert found little that had the stamp of freshness, but the points, as small as they were, served to sharpen interest, and to invite the closest inspection. To the non-expert the Broughams of two and three years ago possessed all the features of the newest. The great majority of exhibitors had their old Broughams repainted or varnished; in fact, there were but two 1901 designs shown. These retained all the plainness of those of previous years, and it required a keen eye to detect the slight changes made. The fact is, that the severe lesson of the freak period of the early nineties caused a reaction that has led to a degree of plainness that cannot be further extended without reaching a simplicity that is about as freaky as were the extremes of years past in the other direction. The present situation virtually bars out the medium builder, as superior finish, correct lines, and workmanship of the highest order are the absolute necessities. These can be had only in a few plants, and it becomes necessary therefore for those who do not make the high grade to resort to some decorative features to offset the lack of skill in construction and finish.

The newest features in painting were shown in not only the 1901 Broughams, but in those of older date as well. All showed dark shades. One maroon was the single exception where the brighter shades were apparent. All others were black or dark green, gears and bodies alike. Not a carnine or other red or light shade was shown. The one maroon had the gear in a darker shade than the body panels. There was so little striping on the gears that it was not distinguishable when the vehicles were moving a few feet away.

The trimming was largely of morocco, biscuit squabbed throughout. Those trimmed with cloth were squabbed in like manner; no brown lace was used.

The cabriolets and Victorias shown in the special classes presented little that was new. The one shown among our fashion plates was the best of its class. The sweep of the bottom side and corner pillar is easy, and the drop at the lowest point is somewhat flattened. One other with compass bottom line was more in the true compass line, having more drop at the center than the one mentioned above. The others were styles that would not be built by our leading manufacturers, except to order. All were plainly painted in dark colors. The trimming was either cloth or morocco; the cushions in small biscuit squabs. The backs, pipe and biscuit, cushion fronts were of cloth or leather. No broad lace. The rear panel of boot was covered, from the seat to the end of the bottom-side scroll, with enameled leather, folded all around to show a beaded edge, and secured by fiat head nails. The foot rests were made of the same kind of carpet as that used on the bottom.

The ladies' phaeton class showed a mixed line. The compass bottom, open quarter under the seat, and the spider predominated, the

latter showing the new features. The former, another revival of the phaeton body of the latter part of the 18th century, without any new features except in the carriage part. The trimmings were much the same as those of the Victorias and cabriolets.

The one horse Victorias and cabriolets brought out the compass bottom and the English quarter, all of which were panel boots. The seats of the English quarter jobs were caned; the compass bottoms, with one exception, had plain full panels. The one exception had concave corner pillars, the concave beginning on the bottom line of the seat, which was indicated by a molding extending across the panel, cutting the seat from the quarter. These English quarter vehicles were short and compact, otherwise they did not differ materially from the same class which led the style twenty-five years ago.

The runabout class brought out a great class of these vehicles, and the judges held the exhibitors to the real runabout. Two end spring buggies appeared in the ring, but they were given the "gate." The indiscriminate use of this name, by carriage and automobile, has caused confusion throughout the industry, a confusion that the builders are accountable for. If there is a man in the business who does not know what a "runabout" is, he should go to school or quit the trade, as he misleads his customers when he calls an elliptic spring buggy a runabout, and the customer who enters an exhibit in the runabout class, as in this case, has good grounds for finding fault with his carriage builder if he is given the "gate" when he shows an end-spring buggy in this class. We do not blame the exhibitors, but we do censure the builders.

The feature of the runabout this year is the lengthening of the gear, so that the body overhangs the axles only, instead of extending three to four inches as heretofore. The proportions of the body are unchanged, but the seat panels are low, being the ordinary one-man wagon seat with round corners. The painting is black throughout, or black body and dark green gear. A few were shown with red gears, but they were mainly of last year's build, and it is evident that the runabout for city use, whether for gentlemen or ladies, will follow the general trend by being painted in dark colors and striped but little.

The Gig class has virtually settled down to the Stanhope gear, the bodies are mainly of the Stanhope-Tilbury type, but some are shown that are entire deviations from the standard, the bodies being without an extension at the rear of the seat. There is no arbitrary law as to the form of the body, but the accepted style, as adopted by those who entered for the Waldorf-Astoria challenge cup, has been, from the beginning, the true Stanhope, and persons of taste are settling upon this as a standard, the freaks not finding favor. With this, as with other classes, we will give illustrations in our Fashion Plate Department, from time to time.

The classes that most interested the carriage trade were those in which the kinds of vehicles were designated, of which there were over fifty, including those in vehicles and equipments count. These were as follows:

Class 15—Horses and best appointed road rig. The following scale of points will govern in judging class 15: Horse, 60 per cent.; general appointments, including wagons, harness, robes, blankets, whips, style, etc., 40 per cent. First prize, \$200; second prize, \$100; third prize, \$50.

Class 16—Pair of horses and best appointed road rig. The following scale of points will govern in judging Class 16: Horses, 70 per cent.; general appointments, including wagons, harness, robes, blankets, whips, style, etc., 30 per cent. First prize, \$200; second prize, \$100; third prize, \$50.

Class 37—Horse and best appointed licensed hansom cab as let for hire. The horse is to count 60 per cent.; the cab and appointments, 40 per cent. First prize, \$50; second prize, \$25; third prize, \$10.

Class 42—Horses and runabouts. Horse to count 50 per cent.; runabout and appointments, 50 per cent. Horses should have conformation, style, all-around action, pace, and good manners. Horses must stand without being held. First prize, \$150; second prize, \$75; third prize, \$35.

Class 49—Horses, not under fifteen hands two inches. To be shown before a Brougham; the horses to count 50 per cent.; the Brougham, 25; harness, 15; liveries, 10. The horses should have good manners, stand quietly, and back well. First prize, \$150; second prize, \$75; third prize, \$35.

Class 50—Pair of horses. To be shown before a Brougham; the horses to count 50 per cent.; the Brougham, 25; harness, 15; liveries, 10. The horses should have good manners, stand quietly, and back well. First prize, \$200; second prize, \$100; third prize, \$50.

Class 51—Pair of horses. To be shown before a Victoria or cabriolet, the horses to count 50 per cent.; the carriages, 25; harness, 15; liveries, 10. The horses should have good manners, stand quietly, and back well. First prize, \$200; second prize, \$100; third prize, \$50.

Class 63—For the best coach and appointments, and the quickest change of teams made in the ring. Appointments to count 50 per cent.; the completeness and speed of change, 50 per cent. This class must be shown before a coach. The horses should have substance, pace, and good manners, and not be under fifteen hands. Prize, \$100.

Class 114—Offered by the association. Pairs of horses. To be shown before a private omnibus. Horses to count 50 per cent.; omnibuses and appointments 50 per cent. Horses and all appointments to be the bona fide property of the exhibitor. First prize, \$200; second prize, ribbon; third prize, ribbon.

Class 115—Offered by the association. For the best pony in harness, not exceeding twelve hands, to be driven by children, and appointments to count. First prize, \$50; second prize, \$25; third prize, \$10.

Class 116—Offered by Messrs. Brewster & Co., in money or plate. For pairs of horses to be shown before a demi-mail, spider, Stanhope phaeton, for park use. Horses to count 30 per cent., and to be practically sound, with good manners; carriages, 30 per cent.; harness, 20 per cent.; servants' liveries, etc., 20 per cent. If, in the opinion of the judges, an exhibit is absolutely deficient in any one of the above qualifications, such exhibit shall not be considered. The entire exhibit must be the property of the exhibitor. Prize, \$200.

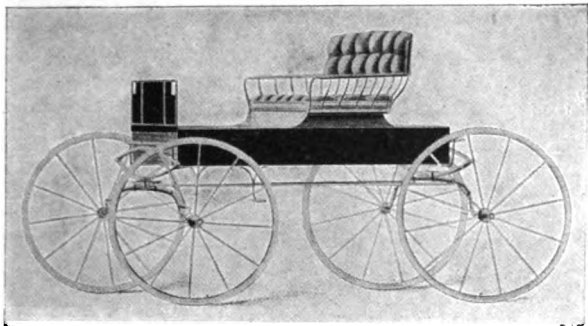
Class 119—Offered by Mr. Frank Jay Gould. For horses, not under fifteen hands one inch. To be shown before a lady's single horse Victoria; the horse to count 50 per cent.; the Victoria, 25; harness, 15; liveries, 10. The horses should have good manners, stand quietly, and back well. First prize, \$50; second prize, \$75; third prize, \$35.

Class 120—Offered by Mr. James H. Hyde. For pair of horses shown before a four-wheeled dog or shooting cart. The horses not to be driven, but the near horse to be ridden by a postilion in regulation livery. Horses to count 50 per cent., dog-cart and appointments, 50 per cent. Prize, \$100.

All the classes were well filled, some to an excess, all of which proved the popularity of the horse and carriage, and the great interest taken by owners in connection with selection of vehicle, harness and equipments as well as of the horse. Nothing more clearly emphasized the popularity of the New York Horse Show than the fact that there were entries from thirteen States and the District of Columbia, and others from England and Canada.

OF INTEREST TO THE C. H. A. T.

ONE of the objects of the C. H. A. T. is aid to the families of a deceased member. This makes it necessary that there is money in the hands of the treasurer for immediate use, and every effort is being made to accumulate a fund that can be drawn upon as soon as notice of death is received. At the meeting last October, two dona-



THE PRIZE PNEUMATIC.

tions were received, one from Mr. Hollander, of Amesbury, in cash, and another from Mr. W. J. Mills, in behalf of the Watertown Carriage Co., of Watertown, N. Y. This latter donation was an automatic runabout, one of the best of the company's make, the association to dispose of it in the way it thought best, the money thus obtained to be added to the funds of the association. This liberal gift

was received with pleasure, and steps were taken to dispose of it at an early day. L. H. Kronfeld, secretary and treasurer of the association, has the matter in charge, and if you want to take the chance of becoming owner of this neat little vehicle, and at the same time aid to convert this gift into money for the benefit of the association, you should write to Mr. Kronfeld, P. O. box 27, Mount Vernon, N. Y., for particulars. THE HUB joins with the association in thanking the donors of the two gifts for their liberality and good wishes, and can assure them, and all others who may wish to aid in building up the benefit fund of the association, that their donations will be scrupulously guarded, and that the aid rendered by them to families in the hour of affliction will be as sunshine through the rift in the cloud of gloom.

RECIPROCITY CONVENTION.

THE following preambles and resolutions were adopted by the Reciprocity Convention at Washington, D. C., November 19 to 21 last:

Whereas, The growth of manufactures in the United States, represented in values and in round numbers, has been as follows: 1850, \$1,000,000,000; 1860, \$2,000,000,000; 1870, \$4,000,000,000; 1880, \$5,000,000,000; 1890, \$9,000,000,000; 1900, \$15,000,000,000, and

Whereas, These figures exhibit at the same time a splendid result for the past industrial policies of our government, and a growing need for the development of larger markets in foreign countries; and,

Whereas, It would seem desirable not only to maintain policies under which such splendid results have been accomplished, but also devise means to develop increased markets for the increased and increasing manufactured products; therefore, be it

Resolved, That this convention recommends to Congress the maintenance of the principle of protection for the home market and to open up by reciprocity opportunities for increased foreign trade by special modifications of the tariff, in special cases, but only where it can be done without injury to our home interests of manufacturing, commerce or farming.

Whereas, The present and increasing magnitude of the aggregate manufacturing and commercial interests of the United States has become far too great to be adequately handled by any of the existing government departments; and,

Whereas, Changing phases of these great interests are constantly bringing new and important questions the proper determination of which would require all the work of a department fully organized and equipped,

Therefore, be it resolved,

First—This convention recommends to and requests of Congress that a new department be created to be called "The Department of Commerce and Industries," the head of which shall be a member of the President's Cabinet.

Second—That a reciprocity commission be created as a bureau of this new department.—Resolutions of National Reciprocity Convention of Manufacturers.

CONVENTION OF WAGONMAKERS.

THE National Association of Wagon Manufacturers held its annual meeting at the Auditorium Annex, Chicago, on November 14 and elected the following officers for the ensuing year: President, H. M. Kinney, Wiona; first vice president, O. W. Johnson, Racine; second vice president, T. G. Gere, Owego, N. Y.; secretary and treasurer, E. M. McCollough, Batavia, Ill.

The next meeting of the association will be at Memphis.

CARRIAGE MEN BANQUET.

MEMBERS of the Syracuse Carriage Men's Protective Association held their ninth annual banquet at the Globe Hotel, November 6. The annual election preceded the banquet, resulting as follows: President, R. N. Haskins; vice president, W. W. Burns; secretary, C. A. Listman; treasurer, S. T. Dennis; attorney, C. S. Kent.

John W. Cronin acted as toastmaster and remarks were made by several of the members.

PLANT ENLARGED.

KOONS & DOAMBERGER, of Hagerstown, Md., have enlarged their plant, and will soon be in a position to fill orders promptly.

Automobile Department.

CHICAGO AUTOMOBILE EXHIBITION.

AFTER all there is to be no track at the Chicago show. The applications for space make it impossible. Either the track had to be abandoned or the management would have had to shut out a number of desirable exhibitors. On the day when the first allotment of space was made there was a conference between the committees of the Chicago Automobile Club and the Manufacturers' Association and Mr. Miles, the manager of the show, and it was decided, unanimously, that the track would have to go. A new diagram has been prepared which will show positions of those who have been awarded what are described, for the present, as "track spaces. The layout of the center of the building will remain unchanged. Unless the demand for space compels the use of the annex for exhibits it will be used for demonstrations. Its dimensions are 75x175 feet. There are in the neighborhood of a dozen spaces remaining, and these will, of course, be allotted to the first applicants.

Following is a list of exhibitors who have been allotted space. In accordance with the rules governing the exhibition the first allotment of space was made on November 5, with the following result:

EXHIBITION ALLOTMENTS.

Locomobile Co. of America.
American Bicycle Co.
De Dion Bouton Motorette Co.
Bachellet Automobile Co.
Overman Automobile Co.
U. S. Long Distance Auto. Co. Ralph Temple, agent.
Olds Motor Works. Ralph Temple, agent.
National Vehicle Co. Ralph Temple, agent.
Electric Vehicle Co.
B. F. Goodrich Co.
Badger Brass Co.
Veeder Manufacturing Co.
Dixon Crucible Co.
Hartford Rubber Works Co.
K. F. Peterson.
P. J. Dasey & Co.
Holley Motor Co.
Goodyear Tire and Rubber Co.

TRACK ALLOTMENTS.

Winton Motor Vehicle Co.
Mobile Co. of America.
White Sewing Machine Co.
Geneva Automobile Co.
Milwaukee Automobile Co.
Beardsley & Hubbs.
Foster Automobile Co.
Chicago Motor Vehicle Co.
Steamobile Co. of America.
Elmore Manufacturing Co.

HARVARD SYSTEM OF AUTOMOBILE STATIONS.

THE Harvard Auto. Corporation, with headquarters at Park Square, Boston, Mass., have introduced a system of automobile stations throughout New England which they designate as the "Harvard System." This has for its aim the establishment of a chain of stations throughout New England where automobiles may be stored, repaired, and charged with electricity, or supplied with the necessary fuel, etc., if of the gasoline or steam types. They have stations established at Boston, Cambridge, Brookline, New Bedford, Fall River, Waltham, Springfield, Arlington, and Lowell, Mass., Providence, R. I.; Hartford, Conn., and Portland, Me., and are negotiating for many more stations at desirable points. The value of such a system to the automobilists can hardly be estimated. It insures to them careful inspection and repairs if necessary by experts and competent workmen, also storage, where care can be given to the machine, and an inspection that assures good condition on starting out. Furthermore, a telephone call will bring an expert to repair a machine at any point within their territory. The step is an advance one, and in a few years it may be possible for the automobilist to travel everywhere without fear of being stalled where no expert repairer can be had.

NEW AUTOMOBILE RACING RULES.

AFTER several weeks of consideration of the subject, the Racing Committee of the Automobile Club of America has just issued its amendments to the racing rules, deemed expedient in view of the last season's experience in speed contests and record rides on the track and road. These amendments are mainly in the form of additions to the old rules, and are as follows:

AMENDMENTS TO RACING RULES.

Amend Rule 53 to read as follows:

53. Once in the hands of the starter, no automobile shall receive any further care, except from its driver, or his assistant.

NEW RULES.

15a. In record races and contests automobiles shall be classified according to weight.

158. Bicycles, tricycles and tandems shall not compete against four-wheel vehicles.

63a. During the running of a contest or record race, the driver must have exclusive control of the steering and power of his automobile.

67a. No time shall be considered official unless the time is taken by an official of "a recognized meeting," or by one appointed subject to the approval of the Racing Committee.

SHELBY STEEL TUBE COMPANY.

THE Shelby Steel Tube Company write us that they are pleased to be able to say that the Automobile Show, from their standpoint was a very successful one. Their exhibit of coiled tubes for flash boilers, heater coils, etc., proved of interest to those who visited their spaces. They find great interest being taken in their flash boiler, but it would appear from the large number of orders which they secured for experimental purposes on flash construction, that many experiments are being conducted at the present time on this item of steam generator. Much interest was also shown in their display of automobile boiler shells, which they are prepared to furnish the trade up to 20 inches in diameter, with thickness of wall either 3/16 or 1/4 in. wall, together with loose heads for the same. They were successful in securing specifications for quite a large quantity of this material. Their display of regular tubes for gears and axles was favorably commented upon by all the trade who visited them. The special tapered tubes exhibited, and the frame tubes bent to specifications shown, resulted in a number of the manufacturers who have been bending and tapering their own tubes, specifying on future shipments, tubes tapered and bent to their specifications. They feel that the show has done the automobile trade a great amount of good, and has demonstrated conclusively that the "automobile" has come to stay, and hope that automobile shows will be successfully held for several years to come.

THE "TOLEDO."

THE American Bicycle Co., manufacturers of the steam automobile "Toledo," at Detroit, Mich., made a most careful study of the boiler and machinery with a view to producing motive power that will be both safe and reliable, and having secured satisfactory types the next step was perfect construction and careful inspection. Through this means they have obtained a wonderfully reliable power. Having secured all this they turned their attention to style and finish, and they have thus been enabled to put a wonderfully reliable and attractive machine on the market.

"BUBBLE JINGLES."

Bubble Jingles, by Stuart Travis, is an illuminated volume treating in rhyme "the jolly side of the automobile." It is printed on special deckle-edge paper, and bound so that the illustrations can be "lifted" for framing. It will, no doubt, give much amusement to automobilists. Published by Rohde & Haskins, 7-9 Cortlandt street, New York City; price \$1.25.

SECOND ANNUAL AUTOMOBILE SHOW. Madison Square Garden, New York City, November 2 to 9, 1901.

See Automobile Illustrations in "Latest Styles."

THE Second Annual Automobile Show held by the Automobile Club of America during the second week of November, was an unqualified success, both in the number and in the character of the exhibits, and in the attendance; and it is but just that due recognition be given to Frank W. Sanger, manager, and his able assistant,



THE HUB BOOTH.

Mr. Young, for their masterly control of details and general arrangement of exhibits. In these respects exhibitors were as a rule fully satisfied, notwithstanding the movement made by automobile manufacturers to take the matter of exhibits out of the hands of the Automobile Club, or at least that the clubs and manufacturers act hereafter in concert.

Exhibits were made by ninety-three firms, thirty-seven of which were manufacturers' agents, representing many of the best of home and French houses. The exhibit of accessories was large and varied, covering motors, auto parts, tires, axles, and appliances needed in the manufacture of steam, electric or hydro-carbon machines.

The interior of the Garden was beautifully decorated with flags and bunting, and brilliantly lighted with electric lights. Very many of the booths were artistically fitted up, and contributed much toward making the exhibition an inviting picture even to those who had no special interest in the exhibits.

Of the automobiles themselves there was much to commend in the styles of the bodies, the neatness of finish, and an absence of those mongrel features so conspicuous in most of the preceding exhibits. It was evidenced, however, that there is a great diversity of opinion as to what shall constitute the leading feature of the automobile body. Some builders follow the French models, termed by them "Tonneau." This is specially noticeable with the high speed, gasoline motors, and to a certain extent with the smaller machines. This copying in full is complimentary to the French, but it reflects adversely upon American skill and taste, and tends to bring forward too prominently a style that is not pleasing when applied to motors designed more as pleasure vehicles than racing machines, for whatever the merits of the latter, the style is wanting in features that appeal to artistic taste. This peculiar form seems to be compatible, if not a necessity, with gasoline motors, but with none other is there any call for it. Then there is the strictly American, a type that has the American carriage as its model. The manufacturers of steam and electric motors are the leading advocates of this model, particularly with their lighter machines. This is simpler in detail than the other, more pleasing to the eye of the public, and less suggestive of machinery, at the same time a carriage of the best type in all of its essential features. Another line represents an amalgamated type in which the French tonneau and the American phaeton are combined. This

admits of a broad field for experimenting, but thus far it has led to mongrel productions rather than artistic designs. Special genius is called for when creating a form from two models, and as yet the man who is thus endowed has not entered the field in the production of the composite style, and the striving after the unique has resulted in spoiling more than one design.

In painting and trimming there has been a marked improvement. This is particularly noticeable in the painting. The selection of colors more or less brilliant has resulted in brightening up the exhibit, as a whole, and in giving character to the individual vehicle. The "red demon" or the "ghost" may not be euphonious or pleasing, but the red and the white machines are far less gloomy than those in black, and when the time comes that the machine is given a name, as has been suggested, these nerve wrecking appellations will be dispensed with, and those that are more pleasing substituted.

The running toward polished metallic ornamentation is not to be discouraged, perhaps, when applied to the racers, but it is decidedly objectionable when freely indulged in if applied to pleasure carriages. Notwithstanding what we have said, however, the vehicles shown this year showed marked improvements in the direction of color and embellishments over those shown heretofore. There were just enough of the extremes to act as cautionary signals against too marked departure from the plain colorings and trimmings of the past.

As to the individual exhibits there is much that might be said, pro and con, but it is not our province to enter into any specific description at this time, as much in this direction would be a repetition of what has already been published time after time.

Autocar Co., of Ardmore, Pa., showed five gasoline automobiles in a very handsomely fitted up booth. The line shown was of popular vehicles, all evidencing care in construction and good taste in finishing. This company won the silver cup in the hill climbing competition of the five-hundred mile endurance test.

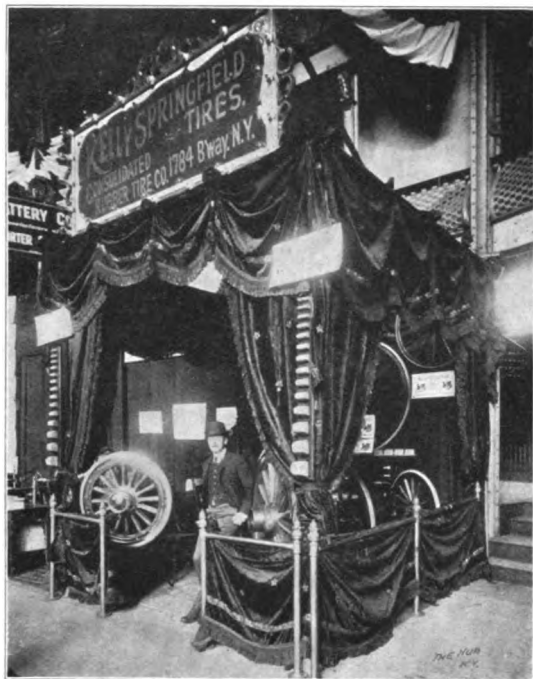


BUFFALO GASOLINE MOTOR CO.'S BOOTH.

Automotor Co., of Springfield, Mass., showed a gasoline motor vehicle of pleasing character. This is one of the simplest machines shown, and the claim that little skill is required to control it appears to be sustained.

Automobile Co. of America exhibited four of their "gasolines" for pleasure purposes, of different models. The standard two-passenger vehicle has a nine horse-power motor, and to the general public it shows no new features, but numerous changes have been made to its betterment. The "Gasmobile" Special is a twelve horse-power machine, which differs little from the standard except in its construction, which gives it higher speed. These, as well as the others in the booth, showed careful construction and fine finish.

American Bicycle Co., of Indianapolis, had a fine exhibit of their two lines of products—"Waverley" (electric), "Toledo" (steam)—six of the former and nine of the latter were shown. The booth was tastefully enclosed and neatly furnished. The vehicles were placed to show to good advantage, and experts were present to give detailed information regarding their construction. The vehicles shown were of popular types of pleasure carriages, two and four passenger delivery wagons. A special feature of the "Toledo" class was a tour-



CONSOLIDATED TIRE CO.'S BOOTH.

ing, intended for long distance touring. The siphon attachment for filling the boiler with water from a wayside stream or watering tank, was shown by an ingenious device placed in the center of the booth.

The increasing popularity of Waverley Electric Carriages among those of the other sex is shown by the large number of this type of vehicle seen on the streets of the metropolis, particularly in the city's handsome parks. The illustration shown this month is a portrait of the ever-popular Anna Held in a Waverley Electric Runabout. The ease of operation and the absolute confidence of the operator both in herself and the machine are pictured in the smile and pleasant expression which help to make more interesting the already well-known face of France's celebrated actress.

Baker Motor Vehicle Co., of Cleveland, O., exhibited four of their Baker vehicles, which are claimed to be the lightest electric vehicles in the market, the Stanhope, weighing 900 pounds, and the runabout, 600 pounds. This company have several special features of construction which seem to possess real merit. The styles were attractive and the finish good.

Buffalo Gasoline Motor Co., Buffalo, N. Y., exhibited their cylinder gasoline motors and gearless transmissions, and judging from the "sold" tags seen before the show was over they must have proved a star attraction to those wanting gasoline motors. These motors can be used for all purposes where power is wanted up to their power capacity.

Century Motor Vehicle Co., of Syracuse, N. Y., had one vehicle on exhibition in their booth and one on the outside for demonstrating the machine by actual use. This machine was run from Syracuse to the exhibition by Mr. Van Wagoner, of the Century Co. This company's autos are steam propelled. They are neat in appearance, strong and salable, and not extra heavy, but care has been taken to avoid weakening the vehicle by reduction of the weight.

Crest Manufacturing Co., of Cambridge, showed one Crestmobile and a full line of Crest goods, which include about every requisite part for a gasoline motor. The Crestmobile has special features of construction, which interested builders of this class of motor vehicles. Their special features were clearly shown in the Crestmobile.

De Dion-Bouton Moterette Co., of Brooklyn, N. Y., exhibited eleven vehicles. Among them were several of standard French types, and others such as Stanhopes and business wagons of American design. The line represented light and heavy machines, a notable one

being a heavy 16 H. P. tonneau, with the motor in front, a form of construction that is new with this company. The entire exhibit was interesting, and attractive in variety of styles and in finish. There were all of the hydro-carbon class of motors.

Desbour Motor Car Co., of New York, exhibited a heavy four and one-half ton truck that has been in use in New York for several months. This is steam propelled, and is a powerful machine. They also showed a gasoline vehicle of the French type. This machine has several pronounced features that commend it to the attention of those interested in this class of motor vehicles.

Duryea Power Co., Reading, Pa., exhibited one of the Duryea hydro carbon motor vehicles of the standard approved type. These vehicles are among the best known in the country. The one shown contained all the new features introduced by the builders, with a view to increasing their value and reliability.

Electric Vehicle Co., of Elizabethport, N. J., exhibited eight vehicles. This exhibit was noticeable for its variety of classes of pleasure vehicles of American carriage type, such as Victorias, Broughams, phaetons, etc., also hansom. In all the line of exhibits there are none that typify the quiet refinement of the automobile and do these electric carriages. The company shows an electric tonneau of the French type. This is the first of this type fitted with electric batteries. The Columbia line is included in this display. These, as well as others, are fitted with all modern conveniences to add to the comfort and pleasure of the occupants.

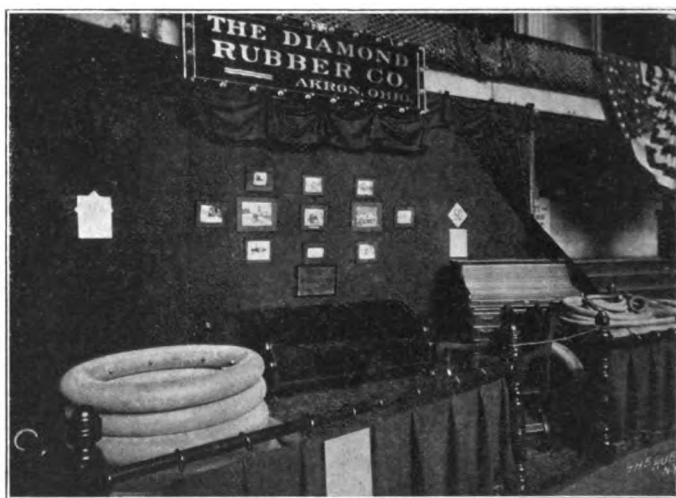
Foster Automobile Manufacturing Co., of Rochester, N. Y., exhibited four steam propelled vehicles, all of the lighter type. One of the vehicles shown was without a body, thus revealing all the machinery, boilers, etc. The engine is light, weighing but 150 pounds, but develops eight horse power.

Geneva Automobile Manufacturing Co., of Geneva, O., showed two steam propelled vehicles, a surrey and a phaeton of pleasing types and fine finish. The construction was such as to give assurance of durability and reliability as to power. The exhibit was overshadowed by some of the larger companies, as to numbers, but in that direction only.

Haynes-Apperson Co., Kokomo, Ind., showed two hydro-carbon autos, one was termed a "runabout," having a six horse power motor, the other a vehicle of the same type but nine horse power motor. These vehicles are equipped with wood wheels, and are carefully made and neatly finished. Their power has been proved by many competitions, in which they won a prominent place.

Holland Automobile Co., of Jersey City, N. J., exhibited a gasoline engine and two gears without bodies, showing the working machinery complete.

Knox Automobile Co., Springfield, Mass., so well known as the makers of the three-wheel Knox auto, showed a four-wheel machine, one of their latest productions. Aside from the necessary



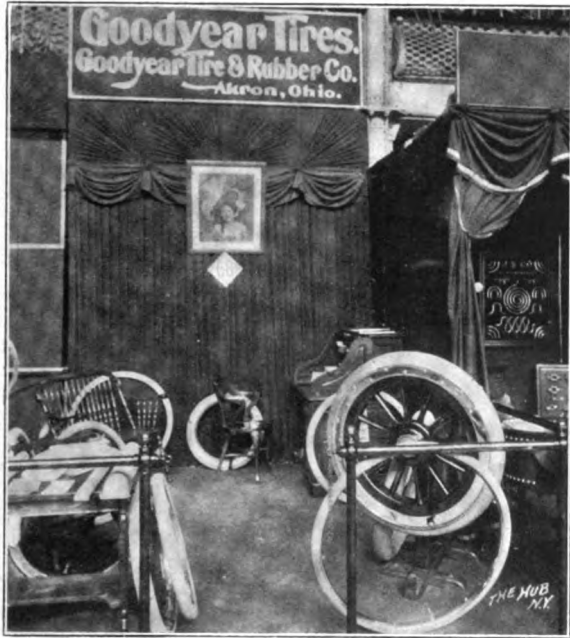
THE DIAMOND RUBBER TIRE CO.'S BOOTH.

changes in front to fit it for two instead of the one wheel, there was little apparent change in the appearance of the vehicle. They also showed one of the standard Knox three-wheelers. These are of the gasoline type of motors.

Locomobile Co. of America, New York City, had a large exhibit, showing eleven vehicles. This company's steam locomobiles are among the best known of this type, and it was a surprise to many to learn that the company was making other than the well known light phaeton. They showed a Victoria, a wagonette and two touring ma-

chines of slightly different models. The success of the early models gives assurance as to the value of the later and heavier styles.

Lane Motor Vehicle Co., Poughkeepsie, N. Y., showed three steam automobiles, two surreys and a Stanhope. The exhibit was neatly arranged in a manner to show the vehicles to the best advantage, while the vehicles themselves were attractive in appearance and well finished. In addition there are many features of construction that



GOODYEAR TIRE & RUBBER CO.'S BOOTH.

contribute to the mechanical portions of the vehicle, and insure reliability. Their booth was made specially attractive by the neat background.

Mobile Co. of America, Tarrytown-on-Hudson, N. Y., showed a varied line of vehicles, embracing their standard Stanhopes in different tops and trimming; surreys, light and heavy; delivery wagons, light and heavy; touring carriages and wagonettes, such as are used in New York and elsewhere. This company claims to be the first to put steam vehicles, for heavy service, on the market. Their factory being one of the largest in the world, they are enabled to extend their business, and have in all probability made markets at more points, home and abroad, than any other company. Their exhibit can but serve to aid them and to add to the popularity of their vehicles at home and abroad.

Milwaukee Automobile Co., Milwaukee, Wis., had two of their steam vehicles on exhibition. These are very attractive vehicles—none more so in their class were shown. The motor has many points of construction peculiar to itself, and which contribute to make the "Milwaukee" a specially desirable vehicle. The company has a New York City agency, through which the exhibit was made.

Overman Automobile Co., New York City, manufacturers of the Victor automobiles, had one of the most attractive displays in the Garden. Their booth was carpeted with green carpet, large columns in white designated the corners, and gateways of ornamental black iron marked the entrance. The desk and furniture were of oak. The four machines were so placed as to show them to an advantage to the passerby. There were a surrey, two "runabouts," and a dos-a-dos. These have steam power. They were all of fine models and highly finished, and received much attention and praise.

Ohio Automobile Co., of Warren, O., manufacturers of the "Packard," exhibited two of their hydro-carbon machines, one of which was one that went through the endurance test with so much credit. The company use wood wheels, and hang their bodies low. The 12 horse-power is ranked among the fast automobiles of the day. The finish of the machines added to the attractiveness of the booth, and elicited marked comments of approval.

Olds Motor Works, Detroit, Mich., showed two "Oldsmobiles." They also had one of their vehicles on the outside demonstrating to the interested visitor the workings of this type of mobiles. The one on the outside was run from Detroit to New York by Mr. R. D. Chapin. The company have a New York agency, and the Oldsmobiles are one of the features of automobiling in New York City. The merits of these machines are sufficient to warrant the attention of the most critical automobilists.

Peerless Manufacturing Co., Cleveland, O., showed three vehicles, one a 16 horse-power racer, the others eight horse-power each. The racer has all the outlines and mechanism to stamp it as a flyer, and much is claimed for it. These machines were made attractive by the colors used in painting, the larger being in red and black, one of the others in white and gold, and the third in black and red. All the mechanical working parts of these machines indicate care in construction and power, while the minor parts are of a character to insure the greatest amount of ease in operating.

Pope & Cushman, of New York City, representing the Fanning Manufacturing Co., of Chicago, Ill., showed one of the company's electric vehicles. The construction of this vehicle differed materially from other electric vehicles shown, and attracted much attention thereby.

Prescott Automobile Manufacturing Co., of New York City is a new company in the automobile manufacturing world. They showed one very attractive steam carriage, having a body of pleasing form. The peculiar features of this machine are sufficient to warrant a close inspection and will aid to attract attention to this new candidate for public favor.

Robinson Motor Vehicle Co., Boston, Mass., exhibited two touring vehicles with the gasoline type of motors. One of these took part in the endurance test last fall. These are duplicates in appearance of the foreign vehicles of their class. They were well finished and to all appearances well built.

Stearns Steam Carriage Co., Syracuse, N. Y., showed four of their steam power vehicles. They consisted of a trap, a Victoria and "runabouts." The exhibit was attractive, and the general appearance of the vehicles elicited favorable comment. It is claimed for them that they are simple in construction, easy to operate and reliable, conditions that tend to popularize the automobile.

Steam Vehicle Co., New York City, exhibited a line of vehicles consisting of Stanhopes, a surrey, a single seated touring wagon and delivery wagons. The carriages were of good design, well painted and trimmed. The business wagons had up-to-date bodies, and were attractively finished. The machines appeared strong and reliable.

F. B. Stearns & Co., Cleveland, O., exhibited one Stanhope, gasoline. The builders claim many special features of merit in connection with the engine, and in the controlling levers, and in simplicity of the parts. No machine of this power system showed so little mechanism.

D. B. Smith & Co., Syracuse, N. Y., showed a steam power Stanhope more elaborate in finish than any other in the Garden. The front was curved and surmounted with metal filigree work, gold



GRANT-FERRIS CO.'S BOOTH.

plated; all exposed metal parts were plated in like manner. This was called the "Elite," and it was certainly a showy vehicle, not only in the plated work, but in the painting and trimming. The builders claim much for it in power and reliability.

Steamobile Co. of America, Keene, N. H., showed two vehicles. One, a four-passenger body with coach bracket front, was an exceedingly compact machine, no tanks being in sight. The machinery and supplies were stored away in the body to such an extent as to leave very little exposed. It has all the fittings needed for a first-class

passenger carriage. The other exhibit was one of the company's standard vehicles, that can be used as a two-passenger carriage, or by use of an adjustable seat fitted as a dos-a-dos.

Smith & Mabley, New York City, importers of French machines, exhibited several Panhards and a Renault racer. These imported machines are all of the best types of powerful machines. They attracted much attention and favorable comment, and were, aside from their powerful features, most excellent representatives of the best ideas of French builders.

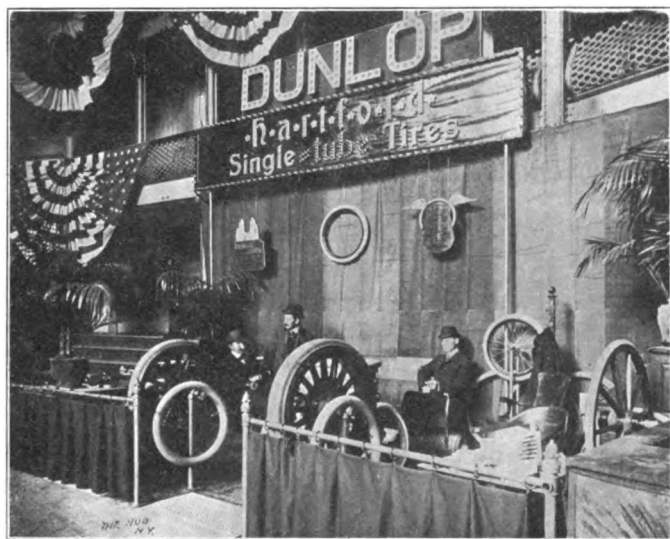
Searchmont Motor Co., of Philadelphia, displayed a line of their carriages in one of the most decorated booths in the Garden.

United States Long Distance Automobile Co., of New York City, exhibited five gasoline vehicles, consisting of Stanhopes, a business wagon and a runabout. The Stanhopes are of approved types, and fitted with full power engines, greater power than the most of their type. The business wagon is roomy and of good design. The entire exhibit had an element of reliability about it that spoke well for the future of the company.

Vehicle Equipment Co., of New York City, exhibited a line of machines, consisting of trucks, business wagons and an ambulance. These had the appearance of being substantial, powerful machines, capable of performing any service asked of them.

Ward-Leonard Electric Co., of Bronxville, N. Y., exhibited one gasoline motor, a substantial and well-finished machine.

Warwick Cycle & Automobile Co., of Springfield, Mass., showed two machines built on the Stanhope lines, the power being hydro-



HARTFORD TIRE CO.'S BOOTH.

carbon. This company manufacture a running gear of special construction. Their steering device is so made that there need be no accidents, even in the hands of a novice. The machine work and finish were of a high order.

Winton Motor Carriage Co., Cleveland, O., showed four vehicles, including the racer, which lower the all existing ten-mile records prior to that run. This machine is entirely free from the foreign imprint. As to its model, it is low, rakish and looks the speeder. The other machines are all of the heavy, powerful type, and have much to recommend them to those who are striving to "beat the world." Not that these have done so, but they suggest a future possibility. The company secured a large space, and showed their line of vehicles to the best advantage.

The loan exhibit was an interesting one. Among its special features were the following:

The first "Locomobile," made by Stanley Brothers. Weight, 400 pounds; $3\frac{1}{2}$ horse power. Loaned by Samuel T. Davis, Jr.

The first "Gasmobile," made by The Automobile Company of America. Weight, 1,800 pounds; 9 horse power. Loaned by Alexander Fischer.

Early gasoline carriage, made by Nadig Brothers, Allentown, Pa. Weight, 1,000 pounds; 2 horse power. Loaned by *The Automobile Magazine*.

A cell of the new Edison iron-nickel storage battery. Loaned by Thomas A. Edison.

Sample of the sign post erected by the Automobile Club of America.

In addition there were twenty-six machines, loaned by the owners, representing many of the best American and foreign builders.

ACCESSORIES.

American Ball Bearing Co., Cleveland, O., showed their bearings in a tastefully constructed booth. American flags and a shield surmounted the gateway, while a revolving star with wheels on points

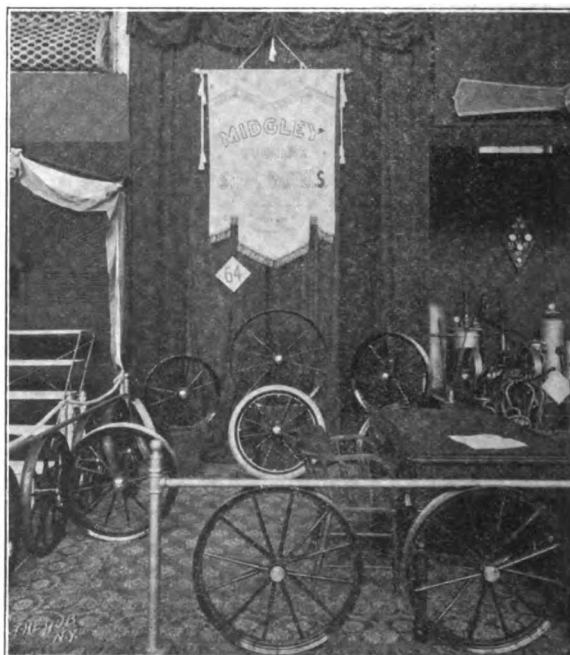


JANNEY, STEINMETZ & CO.'S BOOTH.

added to the decorative appearance, and served in a measure to demonstrate their bearings.

Auto Supply Co., of New York City, showed a sample gear and a line of parts for automobiles. This is comparatively a new house, but their line of goods proved care and high mechanical skill.

American Roller Bearing Co., Boston, Mass., made an attractive exhibit of wheels with wood, and wire spokes, fitted with their bearings. This exhibit was practically the one that was in the Pan-American Exposition.



MIDGLEY MANUFACTURING CO.'S BOOTH.

Baldwin Cycle Chain Co., Worcester, Mass., made an attractive supply of their chains and sprockets, of regular lines, and a full line of their patented roller chains of special design.

Badger Bass Manufacturing Co., of Kenosha, Wis., showed their solar lamps and head lights. The quality of goods was all right and the display well arranged.

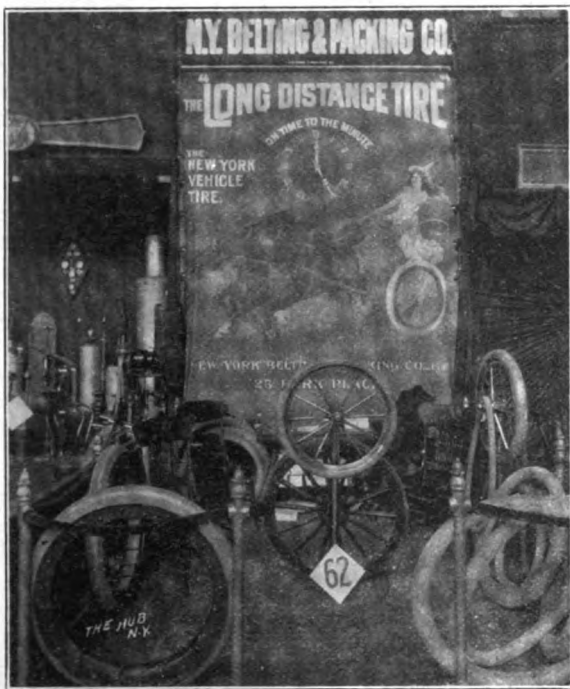
Consolidated Rubber Tire Co., New York, had a luxuriously fitted

up booth, rugs and chairs giving an air of comfort, while the hangings and the specimens of the Kelly Springfield Tires gave a decorative effect to the business end.

Diamond Rubber Co., Akron, O. The booth of this company was large and elaborately decorated, while samples of all kinds of rubber tires made by this company were shown in an attractive manner, and a competent corps of salesmen extolled their merits.

Brown-Lipe Gear Co. One of the features toward the development of a perfect automobile, as illustrated by the show, was the remarkable increase in the popularity of the spur equalizing gear and the corresponding decline in favor of the bevel differential. At the New York show one year ago only three automobile manufacturers equipped their vehicles with spur equalizing gears. This year out of the forty-five makes of automobiles exhibited, twenty-three were fitted with spur differentials, which puts the spur slightly in the lead. Among the noted manufacturers who last year used the bevel differential and have now changed to the spur are the following: The Locomobile Co. of America, The Foster Automobile Manufacturing Co., Milwaukee Automobile Co., Remington Automobile & Motor Co., B. V. Covert & Co. (running gears).

Out of the twenty-three makes of automobiles exhibited with spur differentials the following were of the Brown-Lipe Gear Co.'s make: Stearns Steam Carriage Co., Warwick Cycle & Automobile Co., Mil-



NEW YORK BELTING CO.'S BOOTH.

waukee Automobile Co., Foster Automobile Mfg. Co., Crest Mfg. Co., D. B. Smith & Co., Steamobile Co., Remington Automobile & Motor Co., Elmore Mfg. Co., Autocar Co. (one vehicle), Badger Brass Mfg. Co., B. V. Covert & Co. (running gears), Dayton Motor Vehicle Co. (running gears). Quite a number of others are now changing from bevels to spurs, and will be heard from later. The equalizing gear, though a part of the automobile that the general public hears little about, is one of the most important parts. It has to stand the entire strain of the motor, and upon it is usually applied the brake. The worst feature about bevel differentials is the tendency of the bevel gears to spread apart. This has necessitated manufacturers to construct stronger frames at an increased cost of production, besides less satisfactory results. By the use of the spur there is one less part of the automobile to think about.

Dow Portable Electric Co., of Boston and New York, exhibited a full line of their batteries, spark plugs, coils, and ampere meters. The line is a popular one.

Joseph Dixon Crucible Co., of Jersey City, N. J., exhibited graphite lubricants and other products of the company. "Bishop" Baird was in charge, and as his booth joined THE HUB's booth, there was always a goodly crowd to listen to his modest mention of the products of his company.

R. E. Dietz Co., New York City, made a fine exhibit of the Dietz lamps for automobiles and other purposes. A notable feature was their new head light.

Gleason-Peters Air Pump Co., New York City, had an extensive exhibit of their air pumps, hand and foot, and a new foot horn with pump attachment for automobiles.

Electric Contract Co., New York City, had an interesting exhibit of electric lights and torches. Their Light of Asia water gauge lamps were a special feature.



NEW PROCESS RAWHIDE CO.'S BOOTH.

Goodyear Tire & Rubber Co., Akron, O., showed a full line of tires made by this company. Wheels with nickel plated tires fitted with tires served to make the exhibit attractive, while numerous solid single tube and pneumatics were there in abundance. Their double tube pneumatics were made a leading feature.

Gray & Davis, Amesbury, Mass., exhibited a line of lamps suitable for automobiles, both as side and head lights.

B. F. Goodrich Co., of Akron, O., exhibited the Goodyear clinches tires, and in connection therewith gave the record made by their tires



PUNCTNOT TIRE CO.'S BOOTH.

on automobiles on races and on long runs, showing that the clinches is A1.

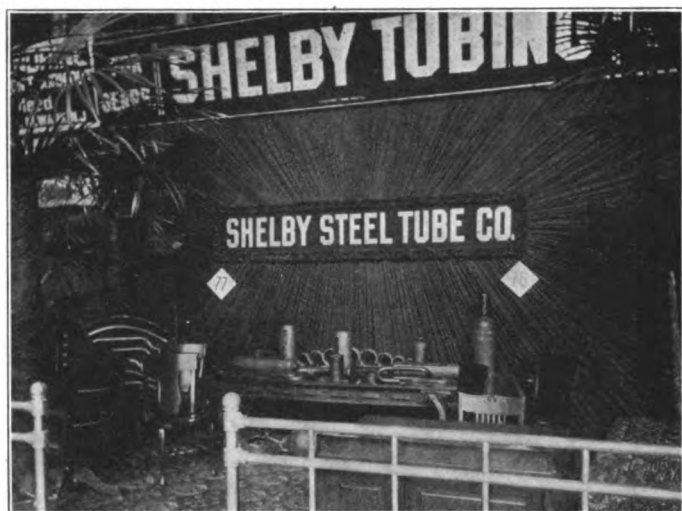
G. & J. Tire Co., Indianapolis, Ind., had a well arranged sample line of their tires in their booth, and experts were on hand extolling their merits and showing their good features.

Grant-Ferres Co., Troy, N. Y., showed a line of Howard motors. They make two and four cycle motors, the two cycle from 1½ to 5 H. P., the four cycle from 2 to 18 H. P. These motors are highly recommended by those who have used them.

General Power Co., Brooklyn, N. Y., showed how easy it is to generate electricity when one is equipped with their little engine and gasoline for fuel.

Hydra Battery Co., New York City, had on exhibition a line of batteries for automobile lighting, motorcycle sparking batteries, and searchlight outfits.

Hartford Rubber Works Company, Hartford, Conn., showed a line of the Hartfords and Dunlop tires in an attractive manner. These were in sizes for automobiles and lighter vehicles. The high reputation of the Hartfords served to attract crowds to the booth.



SHELBY STEEL TUBE CO.'S BOOTH.

J. Holmes & Co., Newark, N. J., showed their salamanderine boiler, constructed with a view to avoid all danger by burning. It is complete and ready for connections, having its own smokestack and burner.

International Automobile & Vehicle Tire Co., New York City, exhibited their pneumatic tires with sponge rubber fillings, by which in combination with canvas they are rendered non puncturable.

Janney, Steinmetz & Co., Philadelphia, exhibited a line of cylinders, tanks, reservoirs and boiler shells. These are seamless, cold drawn and very smooth, capable of standing high pressure. They were shown in various sizes, suitable for an almost unlimited use, their lightness specially recommending them to automobilists.

Charles E. Miller, of New York City, had samples of an almost unlimited line of fixtures of every character for automobiles. There is little that an automobilist wants that cannot be purchased of this house.

Midgley Manufacturing Co., Columbus, O., exhibited a line of Midgley wheels for automobiles. These are of tubular steel and have been adopted by many builders of automobiles.

Model Machine Co., New York City, exhibited a large line of automobile accessories manufactured by themselves; also a ball bearing vehicle tire, consisting of a pneumatic tube enclosing rubber balls. They also showed gasoline engines, boilers, etc.

Mechanical Tire Co., Westfield, Mass., showed a "mechanical" tire, that is a tire consisting of a tube enclosing a series of spiral springs, supported by casings. The claim for these is that they are more durable and not liable to the mishaps so common with other tires.

Munger Tire Co., New Brunswick, N. J., showed the Munger tire. This tire has a peculiar interior formation, by which its non-puncturability is assured. It has been fully described and illustrated in THE HUB.

Metallic Rubber Tire Co., of New York City, made a good showing of their cover for rubber tires. This cover consists of strips of rubber studded with metallic rivets. These rivets, together with the rubber, give a bearing surface, and as the strip can be cemented to any tire they will serve to reduce the tire expense account.

New York Belting & Packing Co., of New York City, had their booth decorated with a painting of the female charioteer, so much used by them in advertising. They showed their long distance tire to the many who had heard of its success on the endurance test, where, in every case, it made the distance without a puncture. No better guarantee could be asked for.

New Process Rawhide Company, of Syracuse, N. Y., exhibited

their rawhide gears. These gears are now recognized as an established and reliable portion of the automobile gear, they having all the durability of the best steel gear, and are almost free from the noise incident to other gears.

Noera Manufacturing Co., Waterbury, Conn., had a neatly fitted up booth in which they exhibited a line of hardware specialties and automobile lamps, together with oiling cans in copper and brass.

Porter Battery Co., of Chicago, showed a line of storage batteries, one a 350 pound battery that had been used on a 150-mile run, one of their standard type 21 batteries. They also showed other motor vehicle batteries in sizes of seven to twelve cells.

Rose Mfg. Co., of Philadelphia, Pa., exhibited their kerosene dash lamp, the "neverout," together with patent elbow joint bracket, which can be adjusted to any desired position without the use of tools.

John Simmons Co., New York City, showed an extensive line of valves and fittings for steam vehicles, all of fine manufacture.

Standard Welding Co., Cleveland, O., had a booth neatly and artistically fitted up with seamless steel tubing. This company makes a business of welding steel tubing for automobiles, etc., and their success speaks volumes for the value of their process.

Shelby Steel Tube Co. had a booth entirely fitted up with tubing bent to artistic forms. The Shelby seamless cold drawn steel tubing is now recognized as standard in every particular. They show tubing annealed for specific uses, and are prepared to anneal tubing to fit it for all specific uses.

The Twentieth Century Manufacturing Co., of New York, manufacturers of the Twentieth Century Lamp, had their booth well supplied with oil and gas lamps for automobiles, etc. These lamps are well known to readers of THE HUB for their good qualities.

Veeder Manufacturing Co., of Hartford, Conn., showed a line of Veeder odometers for automobiles and other vehicles.

Wheel Within Wheel Company, New York, showed their unique wheel and all the parts pertaining thereto. They demonstrated the value of their wheel on an automobile in actual use. This wheel attracted marked attention, and it will without doubt soon take position among wheels for autos and other vehicles.

Upton Machine Co., New York City, exhibited the Upton transmission gear for automobiles. The regular style has given entire satisfaction wherever used. They have recently put out their special, which possesses the good features of the regular, together with improvements intended to increase its efficiency.



UPTON MACHINE CO. BOOTH.

Lee & Porter, Dowagiac, Mich., showed a securing yoke and knuckles for automobiles, together with the Porter patent ball bearing axle and forged steel hub for wire wheels. Mr. Kent had charge of the exhibit, and succeeded in interesting many builders of automobiles. The workmanship on these yokes and knuckles was of a high grade, while the Porter ball bearing axle demonstrated its value.

The Punctnot Tire Co., Philadelphia, showed their new non-puncturable, non-collapsible tires for automobiles and other vehicles. The peculiar character of this tire invites inspection by those looking for improvements.

OLDS MOTOR CARRIAGE.

THE illustrations herewith show the Olds automobile "Runabout," and its adaptability to all kinds and conditions of weather. Fig. 1 shows it as an open carriage. Fig. 2 fitted for stormy weather by

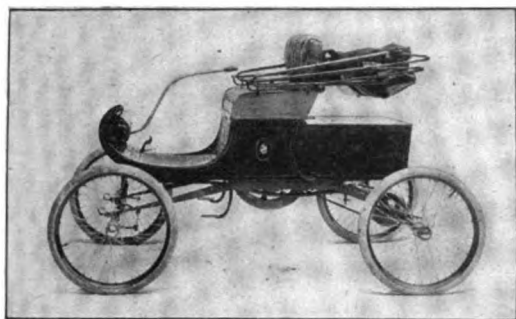


FIG. 1. OPEN CARRIAGE.

using the storm apron, which fits right over the curved dash, in connection with the top and side curtains, that it is practically the same as an enclosed carriage, the entire operating mechanism being enclosed. It can be driven through a driving rain storm without the

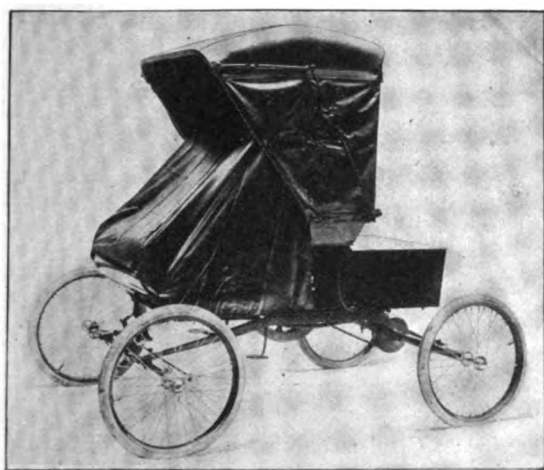


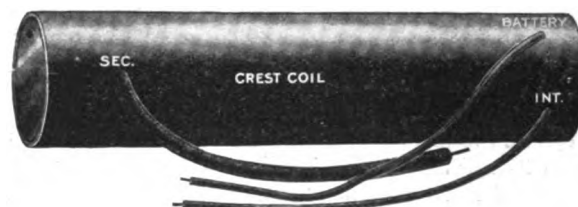
FIG. 2. FITTED WITH STORM CURTAINS.

operator being inconvenienced in the least. The change is so quickly made that the rider can protect himself in a few minutes against a storm. This is but another step toward comfort for the automobilers.

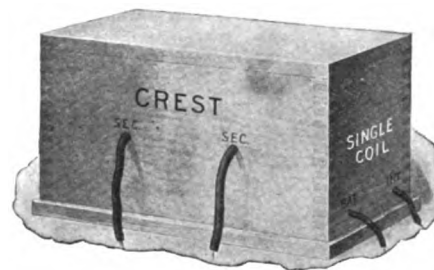
THE CREST MANUFACTURING CO.

THE Crest Manufacturing Co., Cambridge, Mass., manufacturers of the well-known Crest Motors and Crestmobiles, are now placing on the market induction coils of their own manufacture. Their motor business having increased to such an extent they have put in machinery to manufacture their own coils. These coils follow very closely to the best designs which have been adopted by the American trade. As these coils have been very successful in their own use, and wishing to give others the benefit of their experience, they are manufacturing them in sufficiently large quantities to quote interesting prices to the trade. We illustrate two of the types of coils that they are now putting on the market. The coil for motor bicycles and other class of work where the coil is exposed to the weather is made of hard rubber. This insures the coil against failure, as it is well known fibre or wood is affected by dampness. These coils are exceedingly simple, having but three connections, the secondary wire goes to the plug, one primary wire to the battery, and the other to the interrupter or sparking device. The battery wire is the ground both for the secondary and primary. They also make a box type of single coil, having four connections, consisting of two secondary wires, one to the ground, one to the sparking plug, and two primary wires, one to the battery and the other to the interrupter or sparking device. These coils are used for single cylinder motors for automobiles, stationary and marine engines. The third illustration shows the Duplex Coil, which is practically two single coils in one box having five con-

nections. The two secondaries being attached to the plugs of the two cylinders; the two primary wires are connected to the interrupter or sparking device of each cylinder; the battery wire being used as a common ground for both secondary and primary. One important advantage of the use of a Crest Duplex Coil, is that it leaves the two motor cylinders independent of each other, so in case of accident to one cylinder the other is always working properly. This is a great value for any purpose, as will be recognized by the users of multiple cylinder motors. It is well known that the attempt to shunt the high voltage of the secondary is extremely difficult, as short circuits are liable to take place. The double coil is now being adopted by all multiple cylinder motors in Europe, and will no doubt be used in this



country very extensively in preference to any other method. These coils work equally as well with generator or dynamo as with a battery. All vibrator mechanism is dispensed with on these coils, even for the slowest speeds, and it will be recognized that in dispensing with any mechanism similar to the vibrator that disarrangement or care is got rid of. No binding posts are used, all connections are made up direct from the terminal wires, and danger of loose nuts is eliminated, as a coil once placed in connection with a motor does not need to be removed. These coils have nearly double the amount of wire that is put on many other types of coils, insuring the perfect working of the coil, even when run at the slowest speed, or for a long period.



Diagrams are furnished to connect up the coils perfectly. These coils are highly finished, using only the best materials in the construction, beeswax and hard rubber being used for insulation instead of tallow, fibre or wood. They use the well known Varley Windings for these coils throughout.

AN IMPORTANT MOTOR CYCLE DEAL.

It will come as a surprise to the trade that the E. R. Thomas Motor Co., of Buffalo, N. Y., has disposed of its motor cycle business. At the time of the finish of the endurance test there were rumors that some important deal in motors was on, but just what the deal was did not come out. The rumor has now developed into fact, and proves to be that the Thomas Company has disposed of its motor cycle business to a concern to be known as the Auto-Bi Company.

When Mr. Thomas located in Buffalo about two years ago, it was his intention to make gasoline motors only, and to include a small line of motors for bicycles, tricycles and quads. Finding that bicycle makers were not inclined to take up the manufacture of motor bicycles, the Thomas Motor Co. put its shoulder to the wheel and placed on the market the Auto-Bi.

Traveling men were immediately sent out to all parts of the country to sell and demonstrate the Auto-Bi to the bicycle agents. In addition, newspapers, magazines and trade journals have been filled with advertisements, illustrations and reading notices and large exhibits were held at the trade shows at New York, Philadelphia and Chicago, and in addition a most excellent showing is being made at the Pan-American. The result of all this is that the Auto-Bi has become one of the best known motor cycles in the world, and not only

handled by hundreds of enthusiastic agents in this country, but is being handled by bicycle dealers all over the world.

The Auto-Bi with $1\frac{1}{2}$ H. P. Thomas Motor holds the world's official record for speed against $3\frac{1}{2}$ H. P. motors of the best French and other American makes. The Auto-Bi has the record for economy, having made a thousand miles at the expense of one dollar. It has the record for utility, having accomplished on a business trip with frequent stoppages, 202 $\frac{4}{5}$ miles in one day. The record for repairs is 2,800 miles without repairing, this record having been made in the hands of a very prominent Canadian physician. In the recent endurance run from New York to Buffalo, four machines started, and every one of them finished at Buffalo. They also hold the premier position in this run of having all of them made the most controls in the motor cycle class.

Now that the Auto-Bi and the motor cycle business as a whole has reached the stage which the Thomas Company has so clearly proved, Mr. Thomas has determined to place his business on the basis that he originally outlined, and has therefore sold out the motor cycle business to the Auto-Bi Company. This company will use on all its machines the E. R. Thomas Motor, thus assuring its customers of that efficiency, merit and best design that can only come through the large experience and the excellent equipment of the E. R. Thomas Company's factory.

The temporary address of the company will be as formerly, 119 Broadway, Buffalo, N. Y. The management of the new company will be in the hands of Mr. E. L. Ferguson, who was largely interested in its organization, and those who are familiar with his connection with motor cycles will realize that he has accomplished, in part, at least, long cherished plans and ambitions. Messrs. Geo. W. Sherman and E. J. Edmond, the old traveling salesmen with the Auto-Bi from its inception, will be prominently identified with the new company.

BRECHT AUTOMOBILE CO.

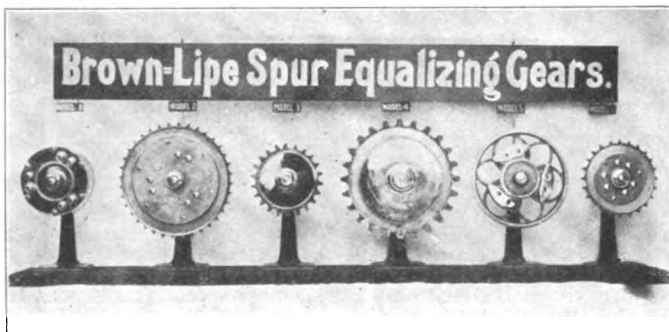
THE Brecht Automobile Co., of St. Louis, Mo., are extensive manufacturers of automobile gears for electric, gasoline and steam vehicles. These gears are gotten up in the best manner, and sold with or without wheels. They make regular lines or to order. In addition they handle lines of parts, bodies, rubber tires and other goods needed for the manufacture of automobiles. Their catalogue contains a variety of illustrations of gears, parts, etc., and gives a good idea of what they produce and the prices asked. A larger one is to follow as the company mean to let it be known that they are in business to stay and that to insure the staying qualities they mean to furnish an A1 grade of goods.

AN ILLUMINATED HANGER.

B. LEDOUX & Co., carriage and sleigh makers, of Montreal and Quebec, Canada, have issued an illuminated hanger calendar. The scene is a hunting party, with horses and riders awaiting the hounds, which are coming in. It is neatly done in colors and makes an attractive card.

A USEFUL CATALOGUE.

THE India Rubber Co., of Akron, O., new catalogue shows rubber tires of all the kinds manufactured by them. This company is paying special attention to automobile tires, realizing that with heavy machines the tires must be of high quality to enable them to withstand the heavy strain put upon them. Send for a catalogue if you are in want of rubber tires for automobiles or carriages.



FOR DESCRIPTION SEE PAGE 413.

C. B. N. A. CONVENTION.

CINCINNATI, OCTOBER 23, 24 AND 25, 1901.

(Continued from November HUB.)

THE BANQUET.

The banquet was given on Thursday evening in the Armory, a large and attractive hall, which was neatly decorated. About six hundred persons were seated at the tables and enjoyed the palatable refreshments, and listened to the fine music by the First Regiment Band. When the diners had finished the tables were removed from the hall, and an attentive audience listened to the many good speeches which were not finished until after midnight.

Hochheimer.	Blue Points.
Old Amontillado.	Julienne Soup.
	Croniesquis of Crab, Sauce Aurore.
	Striped Bass, Vénitienne.
	Potato Croquettes, O'Brien.
Chateau Larose.	Filet of Beef, Larded, Sauce Périguenx.
	Peas Paysanne.
	Sherbet, St. Nicholas.
Veuve Clicquot Sec.	Golden Plover, Sur Canapé.
	Lettuce Salad.
Tutti-Frutti.	Cake.
Appollinaris.	Roquefort and Camembert.
Cigars.	Coffee.

TOASTS.

Grace.....Rev. E. Trumbull Lee, D. D.
The President of the United States.
"The Causes of Business Prosperity"....Hon. Wm. Dudley Foulke
"Some Lessons from the Buffalo Tragedy".....Gen. B. R. Cowen
Music—Arias. a. "The Holy City".....Adams
b. "The Palms".....Faure
"The Outlook: How Roll the Wheels?".....Hon. L. A. Burrell
"With a Tongue and Wheels".....Hon. Wm. B. Melish
"The Yankee in Canada".....G. H. Burrows
"The Carriage Salesman".....Walter D. Gregory

FIRST TOAST—"THE PRESIDENT OF THE UNITED STATES."

President Judkins: Will the gentlemen all please rise and drink to the toast, "The President of the United States."

During the response to the toast the band played "The Star Spangled Banner," in which the audience joined.

SECOND TOAST—"THE CAUSES OF BUSINESS PROSPERITY."

The President: Gentlemen, when you so highly honored me in New York last year as to make me your president, I hope you were aware of the fact that I lacked the necessary qualifications to make a president. (Loud cries, "No, No!") I never was a speaker. I shall not attempt to make a speech now, only in behalf of the C. B. N. A., to welcome you one and all here tonight. (Voices, "Hear, hear.")

The first gentleman on the list who will respond to the toast of "The Causes of Business Prosperity," is a gentleman whom I know you will all be glad to hear. He has lately been appointed on the Civil Service Commission. He has traveled largely in foreign lands and is an author of no small note, a literary gentleman.

I have the pleasure of introducing to you the Hon. William Dudley Foulke, of Indiana. (Applause.)

RESPONSE BY HON. WILLIAM DUDLEY FOULKE.

I should hardly be able, my friends, to survive that appellation of a literary gentleman except for the fact that the President of the United States, whose health you have just drunk, is also a literary gentleman. (Hear! hear!) And when that toast was drunk it seemed to me that it was appropriate that it should be met, not by the silver of speech, but by the gold of silence, for the title, "The President of the United States," bears upon its face not simply the thought of the distinguished living President, but even more vividly does it convey to your minds the image of the illustrious dead. (Applause.) That thought comes to us laden with the tragedy of Buffalo, and although the moral which we are to draw from that tragedy is to be spoken of by a gentleman who is to follow me, yet I think that I may say that even that dreadful event was not without its consolation in the splendid reputation left for history by the man who died. (Applause.)

If it be true, according to the old adage, that no man should be counted happy until he dies, until all the smiles and all the frowns of Providence, and until all that is good and all that is bad in him, has become fixed in the irrevocable past, how deeply happy is that man, who, having reached the highest pinnacle of earthly glory, has honored his high station by a life of singular purity and gentleness, and who has been followed to the tomb by the tears of the grateful millions who have lived under his beneficent administration in prosperity at home and in honor throughout the world.

A few years of added life could hardly have enhanced the reputation in which he is already secure as one of the greatest American

Presidents. For, excepting the names of Washington and Lincoln, I do not believe there is one in that entire illustrious list that will stand higher upon the pages of history than William McKinley. (Applause.)

I am not talking of prosperity now, but the theme of prosperity has been so indissolubly linked with the occupants of that august, of that great office, that I feel that I am not very far transgressing the limits of propriety. The two words, "President" and "Prosperity" not only begin with the same letters, but they very often in the hands of a good man stand for the same thing, for to a very large degree it lies in the hands of the President of the United States to inspire confidence or distrust among the people whereby our own prosperity or our own adversity is sure to follow.

It may not, therefore, be amiss to consider a little some of the qualities which have made McKinley illustrious, and we are not to expect the same qualities in all our presidents. Cleveland had also his admirable characteristics. He was downright, sturdy, immovable, stood for principle—in some respects a very admirable man. McKinley, on the other hand, gentle, lovable, tactful and diplomatic.

It would no more be fair to ask McKinley to be like Cleveland than it would be to ask Roosevelt to be like McKinley. Each man must be true to the laws of his own nature. (Applause.)

We have never had a President for many and many a year before Mr. McKinley with whom a personal interview was always a pleasure, whether the interviewer came successfully, or unsuccessfully away, and I never met a man who impressed me so powerfully with a sense of his masterful spirit, of his tactful management of a conversation, of an interview, than the late President of the United States. (Applause.) He was never obtrusive, always a patient listener, absolutely courteous, and yet the conversation always seemed to follow exactly the channels he wished, and to end at exactly the point he desired (good), and that courtesy of his was uniform at all times, did not proceed from policy alone, but from that native goodness of heart for which he was always distinguished.

When he was struck by an assassin's bullet, what was his first thought? Of himself? No, of his wife. What was the second? Of the assassin that lay writhing at his feet—"Let him not be harmed, let him be treated fairly." His third thought—regret that he had brought misfortune upon our great exposition.

Ah, my friends, the death of McKinley was not simply the death of a Christian; it was also the death of a gentleman—a gentleman at heart. He loved mankind. (Applause.) I heard his late Secretary of the Interior once say: "I sat for two years in the Cabinet of McKinley, and I never heard him speak an unkind word of any human being." (Applause.) And the gentleman who afterwards criticised him, perhaps, most severely of any man in this country, Carl Schurz, once said to me, "McKinley is a most lovable man." (Applause.) No man could say otherwise.

Some men called him a mere politician. I remember upon one occasion he was asking whether I knew of a man who would be a suitable person for Attorney General of Porto Rico. He said: "I have had great difficulty in finding a man for that place. If it was here at home I would have no trouble. I could find plenty that would be good enough for the office; but we must be more careful of our new possessions than we are of ourselves." Were those the words of a politician? No, they were the words of a statesman, and his statesmanship appears most clearly in the character of the men that were sent to administer those new possessions—Taft to the Philippines—Taft, you know him! (Applause.) Leonard Wood to Cuba; Allen and Hunt to Porto Rico. If he had gone over this country with a fine-toothed comb, he could not have found men better qualified for the task which he entrusted to their hands. It is the highest commendation of his successor, that he retained the admirable cabinet, which, in my opinion, is the best that we have had since the days of Abraham Lincoln. (Applause.)

We are particularly fortunate to-day in the character of that successor. Although totally unlike Mr. McKinley in the mere matter of temperament, he is a man, if I may be permitted to say it, whose presence is an inspiration, and whose very name is an incentive to all good and upright things. The name of Theodore Roosevelt to-day stands for civic righteousness—(applause)—a man of great experience in public and private life, yet a man that has laid all his faculties at the sole service of his patriotism, of his love of country.

He will be worthy successor to a great President; and the prosperity which was borne upon the wings of the administration of William McKinley will continue unimpaired throughout the administration of his successor. (Applause.)

Some men say that Theodore Roosevelt is impulsive; but the man whose every act is dictated by a good and patriotic impulse need never be feared by the American people. (Good.)

Now, my friends, to the question of the prosperity of our country and its causes. It is too late for me to say more than a few words. I remember in our town, only a few days ago, there was a negro minister that rose to address the congregation of the Mount Moriah Church, and he said: "My brethren and sisters, my sermon is divided into three parts—de subject, de subject matter, and de arousement." Owing to the lateness of the hour we will omit the first two parts and proceed at once to the "arousement." (Laughter.)

Now, the trouble with me, my friends, is that I have not even got to the subject, or the subject matter, and time warns me that I must soon close, for, although I find, from the cover upon this admirably beautiful menu, that we have before us the picture of Aurora, the early dawn, indicating, I think, that this dinner is to proceed into the wee sma' hours of the morning, yet, in fair justice to the gentlemen who are to follow me, I cannot take up much more of your time. What I want to say is this:

As to the causes of prosperity, of course, we realize that the ultimate and final cause, after all, is in the powers of nature, in the productivity of our bountiful mother earth, joined with human labor; but, as we know, the fairest provinces of the world, with the most benignant climate, will produce nothing but poverty if inhabited by an ignorant and by an unindustrious people, and we know at the same time that even barren Attica, that even inhospitable New England, will produce the best results, industrially and spiritually, when combined with the energy and intelligence of a free and great people; so, after all, it is the people that are the main factors in prosperity and in production, and that the government is the best government which most encourages the highest development of the people.

And we flatter ourselves that in America to-day we live under the best government in the world; not because we have cleaner streets, better swept and better lighted, for many of our European cities fare better than ourselves in that respect, but because our institutions, our common school system of independence, which is fostered by our government, have produced the best race of men, the most alert, the most courageous, the most intelligent upon the face of the earth. (Applause.)

That has been due largely to our system of civil liberty in which we have surpassed the rest of the world—industrial liberty. That means liberty, not merely to compete in the best market, but also liberty to combine; and where we have this senseless denunciation of all trusts and all combines, and the proposition to put them down by the strong arm of the law, I say that as American citizens it behooves us to demand that there should be liberty for men to unite in industrial enterprises just as much as to struggle against each other. There are laws of industrial and social gravitation, just as there are laws of physical gravitation. You can no more lift up a barrier against the industrial Mississippi that is formed by the confluence of many streams than you can lift up a barrier against the Father of Waters himself. You can drive it into safer channels, you can prevent it from overflowing the adjacent country, you can regulate trusts, you can demand publicity of all their affairs, but the idea of preventing men by law from combining together for legitimate and lawful purposes, my friends, is just as impossible as it would be to erect a statute against the laws of gravitation. (Applause.) You speak of liberty; but in order that liberty should obtain its best results it must be world liberty—world liberty of trade. It would be no good for America to have free trade if other countries could erect barriers of protection against us. To-day we are talking but very little about home markets, for we are demanding the markets of the world. (A voice: Right.) We are the leader among the industries of the nations. (A voice: Good); but what good will it do for us to have trade to throw down our doors for the trade of foreign countries, if their doors are to be closed against our trade? What good would it do for us to remove our tariff against the exports of Germany, if we force Germany to build up tariff duties against the exports from America to Germany? It won't do. We must have international tit-for-tat, where they are willing to let in our products free. Let us deal fairly with them. Where they refuse to do it, let us put up the barriers against them. (Applause.)

Reciprocity—reciprocity which was advocated by William McKinley (applause); reciprocity which was demanded by Theodore Roosevelt, is also one of the bases of our future prosperity.

Another great ground of prosperity is the confidence of the people. Why, the confidence of the people would do almost anything. I actually believe that if people would be foolish enough to have confidence in a fiat dollar, that even fiat dollars would be good. The great trouble is that nobody has confidence in it, and they ought not to have. If people only have half as much confidence in the silver dollar under unlimited coinage of silver as they do in the gold dollar, it makes no difference whether silver is worth as much or really more than gold; if Americans do not believe it, it is only worth half as much. And so it is, my friends, that even if you were to advocate a correct principle, provided it inspired public distrust and suspicion, it would be worse for our country than if you advocated incorrect principles that are advocated by the President of the administration, just as were those of our lamented martyr founded upon sound principles, and the prosperity which has been inaugurated by William McKinley will be continued by Theodore Roosevelt till the end. (Good.) Our country will grow and prosper under them. I think I can see my country advancing with giant strides more rapidly in the future than in the past, along the highway toward supremacy among all the nations.

My country, hail! Among the nations keep for aye thine honored seat;

Long may joy and peace and plenty lay their tributes at thy feet;
May each star of thy bright banner like a star of Bethlehem be
To the outcast and the downtrod, calling them to come to thee.
Still through the dim future peering, may we see thee greater rise:
Towering like some snow-crowned mountain upward—upward to the skies;

Standing like a mighty warrior grimly in full armor dressed,
Rising high above thy fellows, loftiest, noblest, grandest, best! (Applause.)

THIRD TOAST—"SOME LESSONS FROM THE BUFFALO TRAGEDY."

The President: A few short weeks ago we were, every one of us, irrespective of party affiliations, deeply shocked at the news from Buffalo, and I venture to say that of all the gentlemen present here to-night that were present at our banquet in Cleveland in 1895, one

of the first things he thought of was when William McKinley was present as our guest of honor that night.

The next speaker, who will respond to the toast, is General B. R. Cowen, a veteran of the civil war.

RESPONSE BY GENERAL COWEN.

Mr. Toastmaster: I would not willingly strike a discordant note to mar the harmony of this festive occasion, but, in the belief that you are all earnest and patriotic men, interested not only as good citizens, but as sagacious business men, in the stability and the improvement of our system and methods of government and in the attainment of an ideal condition of society, I told your committee that, if no objection was heard, I would try to draw "Some Lessons from the Buffalo Tragedy" for your consideration, and it is for that purpose I am here.

I am neither a prophet nor the son of a prophet, yet something in our national life moved me to say, in a public address at the unveiling of the Fort Washington monument in this city last summer:

"It is the conclusion of many careful students that a democracy is the ultimate evolution of government, and it has been well said that there is nothing beyond a democracy but anarchy. It follows, therefore, that it is here restless and desperate men will make their final stand in their great struggle to live without government."

A stunning blow was struck in that great struggle when, surrounded by a loving constituency and the evidences of the wonderful thrift and prosperity of this continent, which he had done so much to promote, William McKinley, the twenty-fifth President of the United States, was stricken unto death by the bullet of an assassin.

Some years ago Mr. Charles Kingsley, a distinguished Englishman, visiting this country, after studying our methods for some time, gave it as his opinion that the greatest danger threatening the American people was the abuse of its public men.

In this great Republic, where so much depends upon reverence and honor to our rulers, we chose William McKinley, five years ago, as our chief executive, and laid upon him the highest honors and the heaviest burdens. In the critical moments of perplexity over unexpected issues of mighty import we stood idly by and permitted the cartoonist and the yellow journalist to do their utmost to destroy the respect of the weak and ignorant, as represented by the noisome assassin, who thus becomes in fact the tool of the sensational press.

To this sin we must add that other sin, of those who devote their days and nights to fanning the flames of class hatred, with the result that often the laboring classes, with their trade unions, have become despotic and tyrannical, slugging and stabbing to death non-union men who were equally made in the image of God, and who are equally entitled to life, liberty and the pursuit of happiness. (Applause.)

Now, my friends, there is a cause for all this, and it is our duty, as patriotic and law-abiding citizens, to find that cause, and, if possible, to apply the remedy.

There has been and there is in this country a Liberty too great; a liberty that is not liberty, but license. The time has come when the utterances which were the exciting causes of the recent great national tragedy, whether spoken in the secret gatherings of anarchistic societies, or printed in open columns and caricatures of sensational journals shall be rigorously suppressed.

I believe in the freedom of the press, but when its speech becomes inflammatory, unscrupulous and conscienceless, it is too free and must be suppressed. (Applause.)

Men of good repute—men who prize the respect and good will of their neighbors assailed McKinley without stint, in all parts of the country. I quote some few of their epithets:

It was said of him that he was "unscrupulous and deceitful;" "the most immoral of all our Presidents;" "vacillating, infirm of purpose and dishonest;" "puppet;" "watchful for votes only;" "traitor;" "standing for cheating and robbery, arson and murder;" "shameless;" "with mediocrity of mind and low, left-handed cunning;" "an abject, weak, futile, incompetent poltroon;" "the most despised and hated of creatures on the hemisphere;" "his name is hated, his figure burned in effigy."

If those editors were the open and avowed enemies of their country, their acts could not have been different.

Coupled with these monstrous epithets applied to one whom the people of this country had made their President, are the teachings of a school whose cardinal tenets are that all governments are oppressive; that all rulers are tyrants; that there is a sacred right and a solemn duty to kill them on sight as one would kill a mad dog.

While this has been going on, nowhere was heard any concert of vigorous protest either against the open and conscienceless teaching of the anarchist or the shameless abuse of the satanic press.

While this was going on practical anarchism was defended and justified, or winked at by high and low, by press and pulpit all over the land. Labor unions have taken it on themselves to take practical possession of the property of other men and decide who may and who may not work and how; while enraged mobs of men and women stood ready with torch and bludgeon to enforce the lawless edicts. Men who have dared to work in spite of those decrees were clubbed and beaten and half murdered; public conveyances were stormed and overturned, and even inoffensive passengers were assaulted.

In other places men only suspected of crime have been shot or burned without a semblance of trial, and these lawless doings have been justified or but mildly condemned, but never adequately punished, by men who are now surprised and shocked at the logical result of such conditions in the murder of the President.

Here we have the three leading causes of our national tragedy.

Is it any wonder that these, acting upon a man of weak intellect and weaker conscience, should culminate in the greatest tragedy of the age?

One of these influences taught him that McKinley was a tyrant; another taught him that the tyrant should die; and the third had so destroyed respect for law and legal forms and methods that the evil work was complete, and the tragedy followed, as a logical consequence.

Time will not permit the discussion of remedies, and I can only offer these suggestions to show where the blame lies. But we owe a duty to our system of government, and that duty is plain. We may not make the laws of the nation, but we can do our part in the framing of the public sentiment of the nation, which is more powerful than law to effect a remedy.

When audiences shall refuse to listen to the foul-mouthed abuse of public men; when readers shall refuse to buy and read newspapers which by pen and pencil villify our public men; when business men shall refuse to advertise in such newspapers, then, and not till then, can our politics be purified, our society elevated, and our public men be made safe from the bullet or the bludgeon of the assassin. (Applause.)

Is it possible there can be any such thing as free speech? We stretch forth a heavy hand to punish the wretch who would enter our homes and poison our children with his vile literature. The law protects the good name of the citizen from the slanderous word. The mails are closed against obscene publications and fraudulent schemes under heavy penalty. There are laws to govern these things. There should be no such thing as freedom of speech in any unlicensed sense, any more than there should be freedom to handle deadly weapons, or to dispense poisons by any irresponsible person. If it be our right and duty to enact laws to guard against such things, is it not equally our right and duty to build up safeguards against the license of speech? Above the visible incarnation of law we must have obedience, without which the nation, the family, the individual, must lapse into barbarism.

Another fruitful cause of anarchy is unenforced law. Government breaks down at no single point without the weakening of law at all other points, and the creation of contempt for law in thoughtless, idle, desperate and vicious, or frivolous minds. Contempt for government in any degree is the partial adoption of anarchy, of which the spirit it entire contempt for all government.

But, to silence false prophets, muzzle free speech, burn incendiary books, even were we prepared to go so far, would not go to the root of the evil. We must go deeper, and there we will find that all these conditions are the direct and immediate result of active ignorance. Passive ignorance is bad enough in all conscience, but active ignorance is the worst thing in the world.

This country has for years been the dumping ground for radical socialists and ignorant anarchists from all parts of the world. This was their city of refuge. Here they were free from molestation to scheme and plot and destroy. They are ignorant of our institutions and of our system of government. If the monstrous crime we all mourn to-day shall be productive of a radical and lasting cure for this evil, McKinley will not have died in vain, as he did not live in vain.

We must go to the very root of this evil. We cannot have the freedom of a Republic without the responsibilities of a Republic. We must have such a system of education as will reach and inform the perverted minds of all such men, and give them a true appreciation of the principles on which our government is founded. Failing that, they must be rigidly excluded from our borders. (Applause.)

We must also represent in our own lives examples of true manhood and enlightened citizenship, and shrink from that lying Pharisaism which, while always ready to denounce the wrong, will not lift a finger to remove it or its causes.

Anarchy grows by inculcating contempt for lawful authority, through speech, printed word and cartoon. It spreads with rapidity when the demagogue, unmindful that all men are under the protection of justice, seeks, under the guise of sympathy, to arouse the envy and hatred of our people against each other to such a degree that but little incentive is left for that thrift, industry and economy promotive of real progress.

But we cannot suppress anarchy with anarchy. The victim of that great crime in the first moment of his agony cautioned the people against the attempt. Every lynching is anarchy. Every strike accompanied by lawless violence is anarchy. Every effort to wrest the execution of the law's penalty from the duly constituted officers of the law is anarchy. We have had too much of that in this country, and it is one of the most fruitful causes of the existing conditions we are considering. In the last twenty years we have had no less than three thousand fatal lynchings in this country; not in the South alone, as many suppose, but scattered over forty-three of our States and territories.

In a country founded on law and where law rules, lynching has no excuse. Murder by a mob on the pretense of retribution for crime is plain murder, no matter what other name men may give it.

Crime is to the State what dangerous disease is to the human body, and to expel it should be to the community an object of deepest concern. But crime can never be suppressed by crime.

"Patriotism is the foe of anarchy," said McKinley in a public speech some years ago. Then let us cultivate patriotism.

Education is the foe of anarchy. Then let us encourage education.

Religion is the foe of anarchy. When the lowly Nazarene walked and talked beneath the bending palms of Palestine and spake as never man spake, enjoining His followers to "render unto Caesar the things

that are Caesar's and unto God the things that are God's." He laid one of the basic principles of the system He inaugurated: obedience to authority; respect for the powers that be.

McKinley himself pondered during a week of agony upon the Providence that so cruelly shortened his life. "It is God's way," was the conclusion of the Christian hero as he lay dying: "His will be done." Submission to authority was his dying thought and word, and revealed the philosophy of his great and useful life.

But, in the midst of the gloom which the great tragedy cast upon the country, we may find one encouraging thought: In the assassination of our President, so universally loved and respected, the country received a stunning blow, but it demonstrated our wonderful growth in strength and steadiness as manifested in the unruffled quietness of spirit with which the nation met the grave crisis.

That crime which shocked the world did not in the slightest degree jar our institutions in their steady course. While our hearts were stirred to their very depths, yet the calm waters of our political and industrial world were scarcely stirred by so much as a ripple. Our tranquility in the grave crisis was not akin to stagnation, but was that solidity which comes of real strength and self-respect. The other nations looked on in surprise at such a striking demonstration of the strength of our free institutions and of the reserve power of the American people.

Let us, then, as time shall assuage our grief, seek for and ponder the lessons and the admonitions that may be suggested by the life and the death of our martyred leader. Let us moderate the bitterness of our political strife and avoid the savage attacks on the motives and character of those who are charged by the people with the responsibilities of high office.

The moral of this whole matter is, not that we shall forego the most strenuous efforts to promote good government and the establishment of an era of righteousness and justice, but that we shall cease our bitter and unreasonable denunciation of men of good repute who differ with us on questions of public policy.

We are not to relinquish free discussion, but should speak and write with deliberation, avoiding any semblance of menace to provoke our opponents, and any intemperate speech which may in any degree justify an appeal to force.

We must hold fast to and assert with firmness those principles on which the good of the country depends, but do it calmly and without hatred, malice or ill will.

There is no foundation of public liberty but public virtue. There is no way of securing Divine favor but by strict adherence to Divine laws. In the love of order and liberty which characterizes so many of our citizens; in the tried virtue, prudence and firmness of our chief magistrate; in the value of the blessings at stake; in the peculiar favor of Divine Providence, we certainly have motives and obligations to resolute and persistent exertion in our several spheres and according to our different capacities. Then, faithful to our country and ourselves, in the vigorous use of every proper means for the promotion of the public welfare, we may confidently leave the issue to Him who cannot err, and who will co-operate with every conscientious effort in that behalf. (Applause.)

THE SOUTH CAROLINA INTERSTATE AND WEST INDIAN EXPOSITION.

CHARLESTON, S. C., DECEMBER 1, 1901, TO JUNE 1, 1902.

THE rapid strides being made by the people of the Southern States is most forcibly illustrated by the opening of an exhibition of magnitude in the old conservative city of Charleston, S. C. The company having it in charge have a capital stock of \$250,000 and resources amounting to \$1,250,000. The following gives an idea in brief of the exposition, its buildings, grounds, and provision made for exhibiting products. The exposition will be held during the season of the year when the climate is at its best, and when seekers after mild winter weather are making the South their homes.

Eleven principal exposition buildings: The Cotton, Commerce, and Agricultural Palaces, Minerals and Forestry Building, Administration Building, Auditorium, Woman's, Art, Negro, Transportation and Machinery Buildings.

Cotton Palace or Textile Building, 50,000 square feet of ground area, with dome rising 160 feet above the Court of Palaces; a facade of over 360 feet.

Commerce Palace, or Liberal Arts Building, 43,000 square feet of floor space.

Palace of Agriculture, 43,000 square feet of floor space.

Auditorium, with seating capacity of over 3,500. Grand organ especially built by M. P. Möller, of Hagerstown, Maryland, for this exposition.

Administration Building, 16,000 square feet of floor space.

Minerals and Forestry Building, 20,000 square feet of space.

Court of Palaces, around which main exposition buildings will be grouped, will be 1,200 feet in length and over 900 feet in width, with sunken garden in the center, 700 feet long and 450 feet wide.

Court of Palaces contains 1,650,000 square feet, as compared with 480,000 square feet at the Trans-Mississippi Exposition, 720,000 square feet at Paris, 563,000 square feet at Chicago, 1,530,000 square feet at Buffalo.

Exposition grounds cover 16 acres, with more than 2,000 feet frontage on Ashley River.

Twenty-two acres of Midway attractions.

Union freight and passenger stations on grounds for Atlantic Coast Line, Plant System and Southern Railway. Direct steamship communication with Boston and New York.

Richest field in the United States for merchants and manufacturers of North, East and West. Farm wealth of the South aggregates at least \$3,000,000,000. Capital invested in Southern manufactures in cotton States in 1900, \$1,000,000,000; value of manufactured products, \$1,500,000,000; 40,000,000 tons of coal mined in the South, and 2,500,000 tons of iron in 1900.

Charleston, largest fertilizer manufacturing centre in the world.

Woman's Department, under the direction of Mrs. Sarah Calhoun Simonds, with board of managers consisting of representative women from all the States in the Union.

Fine Arts, fireproof building of exquisite design, under the management of distinguished art critics and connoisseurs.

Splendid Live Stock Department covering fifteen acres, under direct management of George F. Weston, of the Vanderbilt stock farms in North Carolina. Twenty-seven thousand dollars in premiums to successful competitors, reinforced by special prizes offered by leading horsemen and stock raisers' associations of the United States and Canada. Fine racing features.

Automobile track and miniature railroad around the Exposition grounds.

Negro Department, under direction of Booker T. Washington.

Extensive government exhibit, by special arrangement with the President of the United States, and the heads of the several departments of the government at Washington.

State and city buildings from South Carolina, Maryland, Pennsylvania, Philadelphia, New York, Cincinnati, New England States, and complete collective exhibits from Georgia, Louisiana, North Carolina, Tennessee, Alabama, Missouri, Illinois, Kansas, Washington, Utah, Colorado, Michigan, Delaware, Rhode Island, Connecticut and other States.

Special exhibit from the Dominion of Canada, with exhibits from the several Canadian Provinces.

A complete display of West Indian resources and products, with typical Cuban building of the Spanish type, under direction of commissioners appointed by the Governor of Cuba. With a commerce of \$100,000,000 within ready reach of American manufacturers and merchants, the West Indian feature of the exposition will afford an unrivaled opportunity for American enterprise.

There is no place on this continent where the climatic conditions are so favorable for a mid-winter exposition. Out of door life in Charleston during the winter season is a perpetual delight. Flowers bloom in the open gardens throughout the year, and a bowl of roses on the Christmas dinner table is not an unusual sight.

Charleston is situated six miles from the broad and deep blue sea. It is the finest deep water port today on the South Atlantic coast, the channel permitting the entrance of ships drawing thirty feet. Being within forty miles of the great Gulf Stream tempers the air with "strange tropic warmth and hints of summer seas."

Charleston is regarded by the United States Government as the best strategic point on the South Atlantic coast, and has been selected by the government as the site for one of the largest navy yards in the country.

Charleston is one of the oldest cities in the United States, the first settlement here having been made two hundred and thirty-one years ago. One hundred years ago Charleston was "second to no city in North America in prosperity, social comfort and even in luxury." The first experiments in silk culture were made within sight of Charleston two hundred years ago. South Carolina phosphates were the earliest discovered in the United States and controlled the market for more than a quarter of a century. It is the largest fertilizer manufacturing centre in the world. The only tea farm in the Western Hemisphere is within twenty miles of the city.

Charleston is the chief commercial city of the second largest cotton manufacturing State in the Union.

To prevent a house from being blown down, place a heavy mortgage upon it.

EXHIBITION OF CARRIAGE AND MATERIALS AT THE
TRI-STATE DEALERS' CONVENTION.

CINCINNATI, O., NOV. 18, TO 23, 1901.

FINISHED VEHICLES.

THE ANDERSON CARRIAGE CO., of Detroit, Mich. Six vehicles in charge of W. C. Anderson, president; P. Driscoll, Pennsylvania, salesman; J. B. Hill, Ohio; Fred. Beckett, Indiana; J. R. Penrose, Illinois.

F. A. AMES & CO., Owensboro, Ky. Fourteen vehicles, attended by F. A. Ames, E. W. McMannon, J. B. Foley and W. L. Kasey.

JOHN ANEL, of Cincinnati, O., the "Good old German Buggies."
ANDERSON CARRIAGE MANUFACTURING CO., of Anderson, Ind.—Sixteen vehicles in charge of M. G. Beckner, Earl Wright, O. G. Wright and G. B. Wheelock, secretary and manager.

DANIEL A. ATTICK'S SONS, of Lancaster, Pa. Five depot wagons, in charge of E. C. Attick.

THE ACORN BUGGY CO., Cincinnati, O.

THE ANCHOR BUGGY CO., Cincinnati, O. Ten vehicles.

THE O. ARMLEDER CO., Cincinnati, O. Thirty delivery wagons; Messrs. Armleder and Leisure in attendance.

THE H. H. BABCOCK CO., of Watertown, N. Y. Twelve vehicles of very fine workmanship and elegant designs; in charge of O. C. Hargrave, J. F. Hargrave, Mr. Andrews, F. E. Babcock, S. J. Kukna and Mr. Yant.

THE BIMEL CARRIAGE CO., of Sidney, O.

THE E. B. PIEPHO CARRIAGE CO., of Melbourne, Ky. Very nice display.

S. R. BAILEY & CO., of Amesbury, Mass. Five very fine specimens of their celebrated "Whalebone" Runabouts. Col. E. M. Bailey and R. H. Hills, manager of sales, in charge.

THE BRIGGS CARRIAGE CO., of Amesbury, Mass. Three "High Point" wagons. E. R. Briggs in charge.

THE BRIGHTON BUGGY CO., of Cincinnati, O. Three vehicles. W. H. McCurdy, president; F. M. Hill, secretary; S. S. Wilder, vice-president; W. L. Hawes, superintendent; G. L. Moore, R. P. Henderson, salesmen in attendance.

BIRD & SCHOFIELD, of Amesbury, Mass. Three vehicles of fine designs. E. S. Bird in charge.

BURBANK CARRIAGE CO., Amesbury, Mass.

W. N. BROCKWAY, of Homer, N. Y., with Mr. John Sticker in charge, exhibited two very fine buggies, one a runabout and the other a piano box top job.

THE BROWN CARRIAGE CO., Cincinnati, O., in Implement Hall.

THE BLEES-McVICKER CARRIAGE CO., of Macon, Mo. E. L. McVicker, vice-president and superintendent, and G. W. Malcomb, manager of sales, in charge.

THE COLUMBUS VEHICLE CO., of Columbus, O., showed twelve new styles. R. E. Bebb, J. G. Parsons, J. R. Penrose, Jr., J. Gleich of Pennsylvania, A. Duckett of Illinois, W. Brown of Texas, and A. McAdams in charge.

COLUMBIA CARRIAGE CO., of Hamilton, O., showed eighteen new styles. Messrs. Roberts, Glover, Corbin, Penfield, Place, Harber, Levison, Wright and Curley were in attendance. This exhibit occupied the south room of Art Hall, and had a separate booth fitted up as a private office.

CURTIS & REED, of Piqua, O., two light rockaways.

CORTLAND WAGON CO., Cortland, N. Y.

THE COLONIAL CARRIAGE CO., of Circleville, O. Six vehicles. B. T. Hedges and J. B. Howser in charge.

CONTINENTAL CARRIAGE CO., Cincinnati, O.

CENTRAL OHIO BUGGY CO., Upper Sandusky, O.

CLIMAX BUGGY CO., Columbus, O.

CRESCENT BUGGY CO., Cincinnati, O.

DECATUR BUGGY CO., of Middletown, O., showed fifteen very attractive vehicles, in charge of H. H. Elwood, Harry Quackenbush, E. C. Coolidge and J. W. Ranson.

CHAS. N. DENNETT & CO., of Amesbury, Mass., showed five well made and finely finished vehicles.

GEO. DELKER & CO., of Henderson, Ky., showed a line of light carriages at the head of the north stairway.

M. A. DOUCETTE CARRIAGE CO., of Cincinnati, O., showed eight vehicles.

THE ENTERPRISE CARRIAGE MANUFACTURING CO., of Miamisburg, O., occupied a space in implement building.

THE ECLIPSE BUGGY CO., of Fort Wayne, Ind., showed seven vehicles in a space on the first floor of south hall, tastefully decorated. A handsome silver water pitcher was offered as a prize to the one guessing nearest the number of seeds in a pumpkin. Wm. C. Rastetter and Frank G. Volz officiated.

THE EAGLE CARRIAGE CO., of Cincinnati, O., showed a line of pony work.

THE EMERSON-FISHER CO., of Cincinnati, O., had a few jobs on the second floor, front corridor, but their large display was at their warerooms, to which visitors were taken by automobiles, which made the trip every few minutes.

THE ECKHART CARRIAGE CO., of Auburn, Ind., had only a desk.

THE FISHER CARRIAGE CO., of Cincinnati, exhibited six vehicles.

W. S. FRAZIER & CO., of Aurora, Ill., showed a beautiful line of work. Floyd Frazier, Fred Wright and Fred Beacher in charge.

THE FOUTS-HUNTER CARRIAGE CO., of Terre Haute, Ind., showed three fine vehicles as samples of their very large line of stylish up-to-date work.

N. H. FOLGER, of Amesbury, Mass., was present in person, showing

a high grade Brougham, a light six-passenger rockaway, and a full glass depot wagon.

N. M. FUHRMAN, of Columbiana, O., in implement hall.

E. B. GAUMER SONS, Urbana, O., in implement building.

T. T. HAYDOCK CARRIAGE CO., Cincinnati, O., desk only.

HARPER BUGGY CO., of Columbia City, Ind., desk only.

HEMZLEMAN BROS., CARRIAGE CO., Belleville, Ill., in implement building.

HERRING BUGGY CO., of Mansfield, O., three vehicles.

HASSETT & HODGE, of Amesbury, Mass., exhibited six fine samples of depot wagons, cabriolets, phaetons, etc.

LAMBERT HOLLANDER, of Amesbury, Mass., exhibited a fine rockaway and a depot wagon. Mr. Hollander in charge.

THE HOOVER WAGON CO., of York, Pa., showed eleven jobs, delivery wagons and depot wagons. Messrs. P. T. Allen and I. F. Skinner in charge.

HOLCKER BROS., of Crestline, O., exhibited in implement building.

THE HICKORY CARRIAGE CO., Cincinnati, O., four jobs.

A. HOWARD and GALION BUGGY CO., of Galion, O., exhibited together.

THE IRWIN-SHAW CARRIAGE CO., of Cincinnati, O., occupied the north end of Art Hall.

THE JAMES & MAYER BUGGY CO., of Lawrenceburg, Ind., occupied a room to themselves on the second floor.

THE JEWEL CARRIAGE CO., of Carthage, O., exhibited eighteen vehicles. Messrs. C. F. Pratt, president; Robt. Kennedy, treasurer; C. W. Link, superintendent; H. W. Woodmansee, Wm. St. G. Murray, C. W. Stewart, C. C. Davis, J. F. Morgan, G. T. Smith, W. L. Heise, C. H. Burton and Miss Legler represented the house.

KOCH BROS., New Waterford, O.

THE KEYSTONE CARRIAGE CO., of Cincinnati, O., exhibited their famous line of "Thoroughbreds," each of the thirteen styles being named after a famed horse. These were the Allerton, a fine cutunder runabout, with curved wheelhouse to fit the turn of the wheels; the Armored, a cutunder surrey; the Bonnie Direct, a covert wagon, with cutunder and rumble; the Star Pointer, a paneled body runabout with low wheels; the Captor, a cutunder top buggy; the Direct, a covert Stanhope, with cutunder; the Imp, a cutunder trap; the Coney, a Stanhope phaeton; the Dolly Dillon, a straight sill surrey; the Dictator, a park phaeton; the Onward, a pneumatic Stanhope; the Har-old H., a physician's Stanhope phaeton; the Axtell, a piano box top buggy. Messrs. G. R. Luccas, W. E. Waddell, Gus. Krag, L. W. Reed, J. T. Kelley were in charge.

KNIGHTSTOWN BUGGY CO., Knightstown, Ind.

J. W. KUCKMEYER, Cincinnati, O., a line of wagons.

KAUFFMAN BUGGY CO., Miamisburg, O., six vehicles, in charge of J. W. Brodie, Jas. Kauffman, H. L. Kauffman, M. G. Kauffman. The styles were all new.

THE K. C. BUGGY CO., of Cincinnati, O., occupied a prominent place in South Hall.

J. A. LANCASTER & CO., of Merrimac, Mass., exhibited six very beautiful pony rigs, in traps, runabouts, phaetons, carts, etc. C. A. Lancaster and F. E. Walker were in attendance, and did the honors most acceptably.

W. H. KIBLINGER, wholesale manufacturer, Auburn, Ind., desk only.

THE LA PORTE CARRIAGE CO., of La Porte, Ind., exhibited eight vehicles, in charge of K. M. Andrew, secretary and treasurer; J. M. Mullendore, G. D. Wearin, W. L. Richey, F. A. McCarthy, C. W. Cole, J. P. Elleson, F. Parish and A. E. Tamlin.

THE LING & VAN SICKLE BUGGY CO., of Middletown, O., had six vehicles, a beautiful line of work, in charge of T. F. Carroll, secretary, and S. S. Plank.

THE LION BUGGY CO., of Cincinnati, O., showed six jobs

LULL & SKINNER, wholesale manufacturers, of Kalamazoo, Mich., were in the north corridor.

LINCOLN CARRIAGE CO., of Greensburg, Ind., were in the north corridor.

HARRY W. MORNING, Cincinnati, O., showed three wagons.

MC FARLAN CARRIAGE CO., of Connersville, Ind., had a large exhibit.

MILBURN WAGON CO., of Toledo, O., had nine vehicles.

THE McMURRAY SULKY CO., of Marion, O., showed six of their specialties.

THE MIER CARRIAGE & BUGGY CO., of Ligonier, Ind., were on the first floor.

MOON BROS., of St. Louis, Mo., occupied a part of the stage and the corridor adjoining, with two rooms, to exhibit about two dozen vehicles, some of them of fine design and finish, others of regular trade stock for country use, but all adapted to the dealers' wants. S. A. Moore, J. J. Cole, A. R. Crawford, W. D. Dunnahoo, and J. C. Moon were on hand.

THE NATIONAL VEHICLE CO., of Indianapolis, Ind., exhibited two electric automobiles and twelve vehicles of modern design and fine make. Henry Hicks, general manager, and J. H. Crawford were present.

THE NOYES CARRIAGE CO., of Elkhart, Ind., showed ten jobs, attended by S. B. Pratt, manager; P. E. Ebreuz, J. L. Daley and L. J. Cane.

OHIO BUGGY CO., of Galion, O., showed two buggies.

THE OWENSHORO BUGGY CO., Owensboro, Ky., showed nine vehicles. O. H. Brooks, superintendent; G. T. Walker, W. E. Love, A. T. Wishart, B. M. Settle and W. H. Moore attended.

GEO. W. OSGOOD, Amesbury, Mass., fine opera 'bus.

POSTE BROS., BUGGY CO., of Columbus, O., showed ten jobs of fine finish. B. E. Poste, president; J. H. Poste, S. H. Barrett and W. F. Lanham attended.

PARSONS' VEHICLE CO., of Columbus, O., exhibited ten vehicles in

new designs. Jno. M. Clark, C. J. Parsons and N. T. Hedden were present.

THE PARRY MANUFACTURING Co. occupied a large space on the stage, showing twenty-nine vehicles, many of which were new in style. E. R. Parry, vice-president; G. E. Keller, manager of sales; Chas. Weiland, H. B. Patton, A. Caldwell, Aug. Molz, S. C. Griffith, A. B. Gough, L. Stanley, R. H. Browning, L. M. Osborne, and A. W. Posey were present.

FRANK PHILIPS CARRIAGE Co., Cleveland, O., light speeders.

THE PHOENIX CARRIAGE Co., of Cincinnati, had a small display in Art Hall.

THE PEORIA BUGGY MANUFACTURING Co., of Peoria, Ill., showed six vehicles. J. P. Brownlee, J. S. Tendick, J. C. Firth, G. R. Brownlee and G. W. Farnum were on hand.

THE RICHMOND VEHICLE Co., of Richmond, Ind., showed eleven jobs, in charge of the same force attending the Westcott exhibit. This is the medium line of work built by the Westcott people, but in a separate factory. Mr. Shed. Twigg, superintendent, in charge.

THE RICHLAND BUGGY Co., of Mansfield, O., showed six elegant jobs, in their well known quality, which is equal to the best. W. B. Mahurin, H. E. Ball, W. T. Fulton in attendance.

THE REX BUGGY Co., of Connersville, Ind., had a large exhibit in the front corridor, showing eighteen vehicles, among which were many decided novelties. C. C. Hull, president; W. J. Harris, secretary and treasurer; T. A. Fishback, S. L. Brokaw, E. D. Griffin, Jno. L. Winter, B. A. Gibson, G. M. Chrisman and L. A. Howland were present.

RATTERMANN & LUTH, of Cincinnati, O., exhibited eight jobs. Henry Rattermann, Theo. Luth, Ed. Wrest, C. H. Little, G. C. Brewer, N. J. Kilroy, attended.

RACINE WAGON & CARRIAGE Co., Eichelberger & Co., agents.

RACINE WAGON & CARRIAGE Co., Racine, Wis., space in implement building, buggies, etc.

THE STAYER CARRIAGE Co., of Chicago, Ill., exhibited a line of buggies and harness, the buggy exhibit being mostly at the Emerson & Fisher warerooms. Mr. H. C. Stayer, president, with S. W. White, E. B. Gray, W. C. Fogelman attended at the hall. Mr. H. R. Rinehart looked after their harness exhibit.

SAYERS & SCOVILL, of Cincinnati, O., showed eight jobs.

SECHLERD & Co., of Cincinnati, O., had a space with desks, chairs, etc., only.

THE SINGLE CENTRE SPRING Co., of Evansville, Ind., showed six jobs, in charge of W. M. Copeland and Fred. Hook.

THE SCHACHT MANUFACTURING Co., of Cincinnati, O., showed nine new styles on their own make of gears and wire wheels. Gus. Schacht, the proprietor, assisted by E. Titus and H. Martindale were present.

THE STERLING BUGGY Co., of Rushville, Ind., showed four jobs, one with sleigh runners on the wheels. These are made by Judy & Glasscock. The vehicles were finely finished. Messrs. C. H. Lambert, secretary and treasurer; O. M. Thomas, J. W. Shaver, and D. B. Stewart attended.

C. H. STRATTON & Co., of Muncie, Ind., jump seats.

THE STURTEVANT-LARRABEE Co., Binghamton, N. Y., desk only.

SUMMERS BUGGY Co., Barnesville, Ga., south corridor, second floor.

THE STANDARD VEHICLE Co., of Pontiac, Mich., showed a nice line.

TROY BUGGY WORKS Co., of Troy, O., showed fourteen vehicles, making a fine line, all beautifully made. Mr. Geo. W. Scott, president; C. W. Leslie, general manager; David Kilmer, secretary; C. W. Roosevelt, W. R. Marsh, Scott Walker, W. R. Bailey, J. N. Duval and Chris Leidy were present.

UNION CITY CARRIAGE MANUFACTURING Co., Union City, Ind., front corridor.

VEERKAMP BUGGY Co., Cincinnati, O., south corridor.

WALBOUR & RIKER, of St. Paris, O., showed a fine line of dainty pony rigs.

C. F. WORTHEN, Amesbury, Mass., exhibited some fine depot wagons and rockaways. Mr. Worthen was present in person.

WINKLER BROS., South Bend, Ind., showed ten jobs. F. C. & C. H. Winkler were present.

THE WAYNE WORKS, of Richmond, Ind., had ten vehicles, and some drills and planters to show. H. P. Owens, Burt Arthur, E. W. Pratt and W. W. Schultze in charge.

THE WESTCOTT CARRIAGE Co., of Richmond, Ind., exhibited ten styles of vehicles. B. T. Westcott, president; Harry Westcott, secretary and manager of sales; G. Sidell, Amos W. Riley, M. E. Thurman, A. H. Snider, C. A. Styer and E. L. McCollem in attendance.

WALKER CARRIAGE Co., of Amesbury, Mass., exhibited a very fine brougham and a cabriolet. Mr. J. H. Walker in charge.

MORRIS WOODHULL, of Dayton, O., exhibited a short turn depot wagon of novel construction, the fifth wheel being close under the body, kingbolt well back, and a corresponding turning point being made in the reach. Mr. Woodhull and H. D. Sides were present.

THE XENIA BUGGY Co., of Xenia, O., had an exhibit in the front corridor, second floor.

THE YOUNGSTOWN CARRIAGE & WAGON Co., of Youngstown, O., had two jobs of fine make. W. P. Williamson, D. E. Webster and J. W. Bretney in charge.

THE ZIMMERMAN MANUFACTURING Co., Auburn, Ind., desk only.

FARM WAGONS.

AUSTIN, TOMLINSON & WEBSTER, of Jackson, Mich., showed three of their splendid Jackson wagons, known everywhere for their durable qualities. E. L. Webster, J. F. Carpenter, A. B. Taber, J. W. Rodgers and W. M. Rounds attended.

THE AUBURN WAGON Co., of Martinsburg, W. Va., was well represented by its exhibit, and its interest looked after by Max Robinson.

THE BROWN MANUFACTURING Co., Zanesville, O.

COQUILLARD WAGON WORKS, South Bend, Ind.

CHAMPION WAGON Co., Owego, N. Y.

COLUMBIA WAGON Co., Columbia, Pa.

THE KELLER MANUFACTURING Co., Corydon, Ind., showed one heavy and one light farm wagon of superb construction. W. H. Keller, president; E. C. Keller, secretary; H. B. Chilcote, general manager, and S. D. Bartley were present.

THE KENTUCKY WAGON Co., of Louisville, Ky., exhibited samples of their two patterns of farm wagons, "Old Hickory," with its Oregon give brake, and "Tennessee," with its Pennsylvania brake. J. W. Kennedy, general manager; J. Z. Stevens, John A. Ward and O. C. Root were attending.

MILBURN WAGON Co., Toledo, O., two wagons.

MOLINE WAGON WORKS, Moline, Ill., two fine wagons, one being silver plated.

FOLDING WAGON BOX Co., wagon bed.

HILLSDALE WHEEL Co., Hillsdale, Mich., heavy truck on solid wheels.

OWENSBORO WAGON Co., Owensboro, Ky., two wagons. W. A. Steele, manager, in charge.

OLDS WAGON WORKS, Ft. Wayne, Ind.

OHIO VALLEY WAGON Co., Marietta, O.

TROY WAGON WORKS Co., Troy, O.

RACINE WAGON & CARRIAGE Co., Racine, Wis., light wagons.

TIFFIN WAGON Co., Tiffin, O.

WELLBAUM BROS., Hillsborough, O., two wagons.

CARRIAGE ACCESSORIES.

AKRON GEAR Co., Akron, O., four wagon front gears, strongly ironed in the white, for platform work, and constructed on such mechanical principles as to secure maximum strength. Messrs. M. Otis Homer and A. J. Bertrand in charge.

AUBLE MANUFACTURING Co., Cincinnati, O., bodies in white.

ANSTED SPRING & AXLE Co., Connersville, Ind.

AMERICAN POLE & SHAFT Co., Cincinnati, O.

AMERICAN STEEL & WIRE Co., Chicago, Ill., goods shown in connection with cushion springs.

W. F. ADAMS, New York City, a room on second floor showing a full line of whip cords, Bedford cords, etc. Jno. T. McCarthy and F. C. Merner attended.

THE BRADLEY-VROOMAN Co., Chicago, Ill., exhibited their three coat system of lead and oil painting. They showed a surrey gear which was in the white on Wednesday, and was painted and finished while on exhibition in three days. M. Y. Campbell, inventor, was in charge, assisted by W. M. Reifsnider.

THE BROMWELL-STICKNEY COLOR Co., Cincinnati, O.

THE BOOKWALTER WHEEL Co., Miamisburg, O., exhibited some very superfine wheel stock and wheels. Messrs. Lee Mitchell and S. W. Mitchell in charge.

BUGGY SUNSHADE Co., of Chillicothe, O., exhibited a new device for shading the eyes, consisting of an adjustable sunshade fitted to the front bow of the buggy top.

BUFFALO SPRING & GEAR Co., Buffalo, N. Y., showed in a separate room four jobs in the white, a low front panel seat bike runabout with wire wheels, a stick seat runabout with naked oval axles, and low wood wheels; a Concord buggy, a stick seat runabout with naked oval axles and high wood wheels, and a wood capped axle job with paneled body. W. A. Tuttle and R. B. Skinner were in attendance. The style and workmanship of these buggies seem to be of the highest quality.

C. C. BRADLEY & SON, Syracuse, N. Y., exhibited their well known shaft couplers, in charge of the members of the firm.

BUCKEYE MANUFACTURING Co., Anderson, Ind., poles and shafts. Matt Center in charge.

BUOB & SCHEN, Cincinnati, O., tops, trimmings, bow dressing machine and buggies. Messrs. Buob and Schen in attendance.

CATELY & ETTLING, Cortland, N. Y., top spring and lever, already widely advertised and largely used by the trade. Messrs. A. M. Ettling and H. C. Ettling in attendance.

THOS. H. CORCORAN'S SONS, Cincinnati, O., large display of square lamps. Wm. J. Corcoran in charge.

CORTLAND CARRIAGE Co., Cortland, N. Y. W. H. Homewood in charge.

CLEVELAND RUBBER WORKS, Cleveland, O., mats, props, steps, lap robes, etc., a large line.

CINCINNATI PANEL Co., Cincinnati, O., occupied the end of the west room, second floor, with a magnificent line of bodies, covering almost the entire range of wholesale work. E. D. Albrow and J. N. Miller in charge.

CLEVELAND BENDING WORKS, Cleveland, O.

CLEVELAND BAG FACTORY, Cleveland, O. Matt Center, agent, in charge, assisted by G. E. Kapper and R. H. Gray.

CLEVELAND HARDWARE Co., Cleveland, O., fine line rolled steel forgings for carriage work, in charge of C. E. Adams, A. O. S. Allen, J. R. Swan, A. A. Gay, W. F. Gibbons, A. Bentley, Howard Kennedy and Mr. Holcomb. These goods are well known, and there are no finer nor better made. The process employed in their production is the very acme of excellence, scientifically and mechanically.

H. COOK & Co., Cincinnati, O., showed a new line of bodies of attractive styles. F. Cook, secretary and treasurer, and T. E. McQuaid in charge.

CALUMET TIRE RUBBER Co., Chicago, Ill., exhibited their clincher band two-wire, solid and cushion tires. F. W. Kinney, vice-president, and C. E. Bridges were in attendance.

J. A. & D. P. COOPER, of Struthers, O., showed a fine line of wood stock, some ironed. Wilfred H. Stewart in charge.

THE CONSOLIDATED RUBBER TIRE Co., of New York City, exhibited

the Kelley tire. E. G. Kelley, C. W. Hains, J. H. Cody and G. B. Dryden in charge.

CINCINNATI BUGGY BOOT Co., Cincinnati, O.

CANTON POLE & SHAFT Co., Canton, O., showed a fine line of poles and shafts in the white, some ironed.

DIAMOND RUBBER Co., Akron, O., showed a full line of rubber tires, mats, etc. C. H. Smith, J. W. Scott and O. S. Tweedy in charge.

C. COLES DUSENBURY & SONS, New York City, exhibit of cloths, etc., whipcord robes being one of the novelties. A. E. Ronniger in charge.

ENTERPRISE BRASS & PLATING WORKS, of Cincinnati, O., line of rails, handles, etc. C. Weiglein, proprietor, in charge.

EMPIRE STATE SHAFT COUPLING Co., exhibited the Empire State Shaft Coupling, the American and other couplings, also the Ganon & Trow roller irons. G. H. Spitzli in charge.

THE FITCH GEAR Co., Rome, N. Y., exhibited four gears or racks, one wire wheel bike gear with tubular axles, one side-spring gear and one gear with body complete, all well made. L. M. Fitch in charge.

FIRESTONE TIRE & RUBBER Co., Akron, O., were represented by a fine exhibit, and Messrs. R. J. Firestone, Jr., T. Curtis, A. P. Cleveland, D. L. E. Sisler, S. G. Karkuff were in attendance.

MULHOLLAND SPRING Co., of Dunkirk, N. Y., exhibited their springs and shaft couplers, in charge of Mr. Mulholland.

MOFFETT VEHICLE BEARING Co., of Chicago, Ill., showed a new roller bearing device of great merit. G. H. Petri, E. T. White, and W. G. Van Auker in attendance.

JAS. MURDOCK, JR., of Cincinnati, O., plated work.

NEW I. D. SEAT Co., Rohrestown, Pa., small seat for third person in buggy. S. O. Frantz in charge.

NEW YORK LEATHER & PAINT Co., exhibited their well-known imitation leather, Fabrikoid. J. K. Rodgers, M. V. Waring in charge.

NATIONAL INDIA RUBBER Co., of Chicago, Ill., indestructible tire. J. H. Poyen and W. E. Roby in charge.

POWITZKY & COLLINS, of St. Louis, Mo., carriage bodies. H. F. Powitzky, R. N. Collins in charge.

THE PNEUMATIC WHEEL Co., Freehold, N. J., gears, wheels, and axles. H. C. Tyler, H. F. Weeks in charge.

PRESSURE MANUFACTURING Co., Hartford, Conn., occupied a room at the south end of front corridor, to show their well-known high grade axles, wheels and gears.

THE PANTASOTE Co., of New York City, had a large space to show their goods on tops and backs.

THE PETERS & HERRON DASH Co., of Columbus, O., showed a large variety of new and regular styles of dashes and fenders, all perfect specimens of stitching and covering, the good qualities of which have been certified to by many a carriage maker. Chas. M. Peters, the indefatigable, was present, and captured many a new customer.

PONTIAC BODY MANUFACTURING Co., of Pontiac, Mich., showed a very nicely made runabout, also a milk wagon body.

PIONEER BENDING Co., Pique, O., desk only.

QUEEN CITY FORGING Co., Cincinnati, O., desk only. O. E. Walker in attendance, and apparently capturing plenty of business.

RICHMOND MANUFACTURING Co., of Richmond, Ind., a fine line of lamps from the largest to the smallest size. W. H. Longennecker, W. A. Bell in charge.

ROSE MANUFACTURING Co., carriage lamps, Philadelphia, Pa.

SPRAGUE UMBRELLA Co., of Norwalk, O., had a large space in which were about fourteen canopies spread, making a fine display. Hundreds of small umbrellas were given away. Col. Sprague was present in person.

STANDARD WHEEL Co., of Terre Haute, Ind., presented the merits of their wheels by samples and the exertions of Chas. Minshall, general manager, Ed. Sendelbach, sales manager, and Wm. Meeker, patentee and general superintendent.

SIDNEY POLE & SHAFT Co., of Sidney, O., showed their poles, tops, etc. A. Fieldman, and C. Whitney present.

STAPLES & HANFORD, of Newburg, N. Y., showed their springs adapted to cushions—leaders in their line.

DAVIS W. SHULER & SON, of Amsterdam, N. Y., springs.

THE SELLE GEAR Co., of Akron, O., in charge of G. B. Tucker, exhibited their usual line of gears for wagons.

THE STEPHENSON MANUFACTURING Co., South Bend, seat spindles.

STANDARD ANTI-FRICTION EQUIPMENT Co., of New York, showed a runabout complete with shafts having the Stone coupler, a very fine thing, by the way; also several gears on axles, with their roller bearings, and several revolving wheels to show the ease of motion; also a table of parts for explanation. W. W. Leavenworth, T. E. Beckert, A. C. Farnsworth, A. W. Caney, J. S. Beatty and C. Gresser were in attendance. The Empire ball bearing axles, the Star brand rubber tire, the Stone shaft coupler and Sweet's concealed band wheel are their talking points.

THE STAR MANUFACTURING Co., Princeton, Ill., otherwise The Star Ball Bearing Axle Co., were represented by W. H. Makutchan and S. S. Evans, who showed the good points of their axle, shaft shackle and neck yoke center.

THE SAFETY SPINDLE MANUFACTURING Co., of Danville, Pa.

SCHUBERT BROS' GEAR Co., Oneida, N. Y., showed two jobs in the white, and excellent work.

FORD BUGGY TOP LIFT Co., of Macon, Mo., a new device for raising and lowering tops.

FOWLER ELASTIC ENAMEL PAINT Co., of Chicago, Ill., exhibited their three, four and five coat systems of painting in the new lead and oil way, insuring a certainty against chipping or flaking, and holding up the varnish with a surface that is better than by the old process. F. F. Fowler, H. C. Ashbaugh, F. Krumdick, H. Kuhn and G. Davison were in attendance.

THE FRANTZ BODY MANUFACTURING Co., of Akron, O., exhibited two jobs in the white, a runabout, a Stanhope and a phaeton; also fine specimens of work, but fair samples of their regular product. E. L. Frantz was in charge, and although a young man has proved eminently gifted with business ability and has made many friends in the trade.

FERNALD MANUFACTURING Co., North East, Pa., exhibited their excellent shaft couplers, in charge of G. H. Fernald and T. O. Marshall.

GRANT SHAFT COUPLING Co., Philadelphia, Pa., a new coupler.

C. L. CREENE, Cincinnati, O., a full line of carriage goods.

GRAY & DAVIS, Amesbury, Mass., a large line of lamps, all new styles, from hearse down to pony rig size. Wm. Gray in charge.

GLOVER VEHICLE SPRING Co., Chicago, Ill., a spring for hanging the seat on the side of the bed of a wagon. A. A. Johnson, J. W. Mulligan in charge.

GOODYEAR TIRE & RUBBER Co., Akron, O., exhibited in a splendid booth, the dome of which was surmounted with a silver crescent, the ceiling hung in Turkish red muslin, and the interior carpeted with Turkish rugs, lit with rich Oriental lamps, while palms lent an exotic appearance to the whole. Messrs. J. A. Burrows, manager of the carriage tire department; G. H. Williamson, manager Cincinnati branch; J. R. Vaudusen, manager Chicago branch; T. F. Callahan, manager St. Louis branch, and G. E. Hemmingway, Ohio salesman, officiated in displaying the merits of the Goodyear tire and other goods, in a manner which captivated a large number of customers.

HESS SPRING & AXLE Co., Carthage, O., exhibited a line of beautifully made springs and axles. C. W. Cathcart in charge.

J. V. HANKINSON, of Franklin, O., wagon jack.

HARTFORD RUBBER WORKS Co., of Hartford, Conn., showed their rubber tires, mats, spring bumpers, etc., also the Dunlop tire, which they now make. E. E. MacMaster, manager Detroit branch; A. H. Wyckoff, Indiana, Kentucky and Illinois representative, and P. W. Hood, manager Cleveland branch, attended.

HOUSTON & CURTIS, Chicago, Ill., showed a fine line of bent woods.

THE HERBRAND Co., Fremont, O., forgings.

THE INDIA RUBBER Co., Akron, O., had a large exhibit, and they were so busy waiting on visitors that your scribe did not get an opportunity to get the names of their representatives.

THE IDEAL MANUFACTURING Co., of Oneida, N. Y., exhibited their shaft couplings, in charge of O. D. Newell and W. E. Sherwood.

THE JACKSON CUSHION SPRING Co., of Jackson, Mich., gave away lapel pins, shaped like their springs, which can be put in or taken out after the cushion is made up. W. H. Smith, manager, and A. W. Tower were present.

THE KING SPRING Co., of Buffalo, N. Y., showed eight jobs in the white, in charge of Chris. Wesp, president, and N. J. Baxter, superintendent.

THE KOKOMO RUBBER Co., Kokomo, Ind., had a plant in operation showing the operation of putting on their tire. They have a good thing in both machine and tire.

S. W. KENT, of Cazenovia, N. Y., is agent for Lee & Porter, the Wm. Harvey Rowland Springs, National Manufacturing Co., Fifth Wheels, Bull-dog Shaft Couplings, and a number of other well-known carriage goods, all of which were exhibited.

W. F. KRAMER, Dayton, O., short-turn wagon.

ANDREW KIMBLE, Zanesville, O., gear woods and irons of fine quality. F. A. Kimble in charge. These goods are too well known to need description.

B. F. KEITH & Co., Wilmington, N. C., exhibited their new plan of oiling axles without removing wheels.

THE KERATOL Co., of Newark, N. J., had an exhibit in charge of J. H. Baker and M. V. Kennedy.

LEE & PORTER, of Dowagiac and Buchanan, Mich., in charge of S. W. Kent, assisted by Mr. H. H. Porter and W. C. Porter, exhibited their axles, wheels, and gears, which were generally admired.

G. H. LOUNSBURY & SONS, Cincinnati, O., showed a line of carriage trimmings, and their hair picking machine and button machine. Jas. Fishwick, Clark Mahoney and A. P. Lounsbury in charge.

LAUNDER, HARTER & MARSH, Wabash, Ind., singletree trace snapper.

LOWE BROS. & Co., Dayton, O., paints.

HENRY LANG Co., Newark, N. J., patent leather.

MONARCH CARRIAGE GOOPS Co., Cincinnati, O., display of prop nuts trimmers' hardware, boots, etc. C. Weiglein in charge.

MORGAN & WRIGHT, Chicago, Ill., large enclosure, handsomely equipped, and a plant in a small booth for putting on tires. A. L. Philp, manager of the tire department; G. M. Stadelman, J. C. Weston, I. P. Cooper, S. H. Pierce, R. H. Campbell, J. Fintze, H. L. Harpin attended. Their new machine, it is claimed, will put on 25 sets of tires a day.

P. R. MITCHELL & Co., Cincinnati, O., every variety of hair known to the trade. D. Diebold and C. F. Robb in charge.

MARMET COAL Co., of Cincinnati, O., coke for smithing.

MUNCIE MANUFACTURING & JOBBING Co., Muncie, Ind., wheels, etc.

METAL STAMPING Co., New York City. Jesse Wozencraft, Cincinnati agent; John Galvin, president, exhibited their cushion spring and standard shaft coupler.

THE SHERWIN-WILLIAMS Co., of Cleveland, O., showed samples of painted work by their well known process. D. J. Moore, W. B. Wise, J. W. McCutchen and A. E. Schafer in attendance.

THE TIRE SETTING MACHINE Co., of Lime Rock, Conn., showed only a small clip bender. B. McGovern in charge.

TROY CARRIAGE SUN SHADE Co., of Troy, O., sunshades, canopies, etc. A. G. Stonder, C. G. Snook, H. B. Carver and E. E. Enger present.

(Continued on page 432.)

DEALERS' CONVENTION.

Twelfth Annual Meeting, Held in New York City, October 14 to 19, 1901.

THE twelfth annual convention of the National Dealers' Association, which was held at Grand Central Palace, was fairly well attended, but the exhibition of finished carriages in the same building proved so attractive that scores of dealers failed to enter the meeting room, and by their presence, at least, give an idea of the strength of the association, and learn direct what was being done for their benefit. It may be well enough to assert that "we have full confidence in the officers," but it is much to expect that a few men are to do the work of the many, and it is little short of a direct insult to the workers for a member to visit the exposition day after day and not show himself at the regular meetings of the association. Such men deserve no recognition, but the rule holds good that the absentees constitute the great bulk of the protesters against manufacturers. These are ready enough to reap all the benefits of the association, but are too selfish to give any of their time to its meetings.

The first business meeting was held on Tuesday, Oct. 15th. President Van Fleet called the meeting to order, and without preliminary announced as the first item of business the consideration of the proposed amendments to the constitution and by-laws of the association. On motion the first amendment, as follows, was taken up:

"To shorten the name of the Association by dropping the words 'and harness Retail' therefrom, and making the full title to be hereafter officially used, 'National Carriage Dealers' Protective Association'."

The amendment was adopted as read.

The next contemplated change is in the pledge of the Association by inserting the following paragraphs:

"The members of this Association pledge themselves, singly and collectively, not to purchase or handle (either from the original manufacturer or a jobber or other dealer) any goods manufactured by a person or firm known to furnish goods of their manufacture to catalogue houses, or furnish them to jobbers or other persons known to be supplying catalogue houses with goods of any kind."

"The said members also pledge themselves not to purchase any goods from a jobber or wholesale dealer who is known to supply goods of any kind to catalogue houses, or who handles goods that are made by manufacturers who supply any part of their finished product, or the product of other manufacturers, to catalogue houses."

Secretary Ranken moved the adoption of this amendment. He said, to be more concise, I might say that the whole thing in a nutshell is, that we will not buy any goods of a dealer or jobber or manufacturer, or of any person whom we know supplies goods to catalogue houses.

After a somewhat lengthy debate the amendment was unanimously adopted.

Secretary Ranken said the next business in order is the question of honorary membership. I will now read the paragraph which it is proposed to be inserted after the paragraph headed "Active Membership":

HONORARY MEMBERSHIP

"Any wholesale manufacturer or jobber in the carriage, harness or accessory trades, who is not a retailer, may become an honorary member of the Association, without cost, by signing an agreement not to supply catalogue houses with goods of his manufacture, or knowingly allow them to be supplied to catalogue houses by jobbers or others; and the fact of his having signed such an agreement will be communicated to every member of the Association and otherwise made generally public."

"The privileges of an honorary member shall be the same as those of a regular member, except he shall not be permitted to vote upon questions before the Association."

This paragraph simply defines that unless the agreement is signed by the manufacturer not to supply catalogue houses he is not to be accepted as a member. That is the only restrictive clause which I think there is in this paragraph, and we certainly would not want any manufacturer for a member if he were selling catalogue houses.

The amendment was adopted without a dissenting voice. The remaining hours of the meeting were devoted to hearing and acting upon complaints.

SECOND DAY, WEDNESDAY, OCT. 16.

The major part of the second session was devoted to hearing and settling complaints. These being dispensed with, nominations were next in order. On motion, the officers of the past year, with the exception of Vice-President Herrington, of Madison, Wis., were unanimously re-elected. Mr. M. H. Tanner, of Winsted, Conn., was elected second vice-president.

THIRD DAY, THURSDAY, OCT. 17.

The morning session was devoted to hearing and disposing of complaints. After disposing of these, adjournment was taken to 2.30 p. m. The afternoon session was called to order on time, and President Van Fleet announced that an invitation had been received for the association to hold its next annual meeting in Philadelphia, Pa. After some debate the matter was referred to the President and his Advisory Board, with power. The president next called attention to the banquet to be given by the C. H. A. T., and advised the dealers to buy tickets for that event. The remaining part of the session was devoted to discussing the "catalogue" house. Many manufacturers took part in the discussion, and some old unpleasant memories were revived and mutual good-will established. The feeling was most decidedly adverse to dealing with catalogue houses, but final action was deferred until the February, 1902, meeting. The association having extended to manufacturers the privilege of honorary membership, the names of the following manufacturers were read:

MANUFACTURERS APPLYING FOR HONORARY MEMBERSHIP.

H. H. Babcock Co., Watertown, N. Y.
Columbus Buggy Co., Columbus, O.
Cortland Wagon Co., Cortland, N. Y.
Cortland Cart & Carriage Co., Sidney, N. Y.
Troy Buggy Works, Troy, O.
Watertown Carriage Co., Watertown, N. Y.
Auburn Wagon Co., Martinsburgh, W. Va.
O. Armleder Co., Cincinnati, O.
Ames-Dean Carriage Co., Jackson, Mich.
Durant-Dort Carriage Co., Flint, Mich.
Columbia Wagon Co., Columbia Wagon Co., Columbia, Pa.
Youngstown Carriage & Wagon Co., Youngstown, O.
Flint Wagon Works, Flint, Mich.
Owosso Carriage Co., Owosso, Mich.
Keator & Wells, Cortland, N. Y.
Parsons Low-Down Wagon Works, Earlville, N. Y.
Sayers & Scovil, Cincinnati, O.
John G. Wilkinson, Newburgh, N. Y.
C. V. Taylor, Pontiac, Mich.
Anderson Carriage Mfg. Co., Anderson, Ind.
N. M. Fuhrman, Columbus, O.
W. S. Frazier & Co., Aurora, Ill.
D. A. Altick's Son, Lancaster, Pa.
La Porte Carriage Co., La Porte, Ind.
Emerson & Fisher Co., Cincinnati, O.
Hassett & Hodge, Amesbury, Mass.
Lambert Hollander, Amesbury, Mass.
Jackson Sleigh Co., Jackson, Mich.
South Bend Wagon Co., South Bend, Ind.
Zimmerman Mfg. Co., Auburn, N. Y.
Briggs Carriage Co., Amesbury, Mass.
A. Wrenn & Sons, Norfolk, Va.
Westcott Carriage Co., Richmond, Ind.
Owensboro Buggy Co., Owensboro, Ky.
Fouts & Hunter Carriage Mfg. Co., Terre Haute, Ind.
Ligonier Carriage Co., Ligonier, Ind.
Robinson Mfg. Co., Freeport, Ill.
The Ohio Valley Buggy Co., Aurora, Ind.
Colonial Carriage Co., Circleville, O.
Sechler & Co., Cincinnati, O.
Schacht Mfg. Co., Cincinnati, O.
Acme vehicle Co., Pontiac, Mich.
Lansing Wagon Co., Lansing, Mich.
Ling & Van Sickle Co., Middletown, O.
The L. Burg Carriage Co., Dallas City, Ill.
Jekel Carriage Co., Carthage, O.
Rock Hill Buggy Co., Rock Hill, S. C.
Harper Buggy Co., Columbia City, Ind.
L. E. Coolidge, Woodville, Mass.
C. F. Worthen, Amesbury, Mass.
Davis Wagon Co., Columbus, Ga.
Wisconsin Carriage Co., Janesville, Wis.
Waterloo Wagon Co., Waterloo, N. Y.
Hatch & Co., Connecticut.
Koch Bros., New Waterford, O.

ON A TRIP TO HAVANA.

WILLIAM HOOKER ATWOOD, treasurer of the New Haven Carriage Co., sailed on December 4 for Havana, Cuba, for a month's recreation. Mr. Atwood was one of a party on pleasure bent, but he is too much of a globe trotter to allow an opportunity for business to be interfered with by the pleasure feature; in fact, with him business is pleasure, and we may expect to hear of New Haven Carriage Co.'s carriages running in the streets of Havana and other Cuban cities.

Items of Interest.

IN THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF OHIO, EASTERN DIVISION.

The Rubber Tire Wheel Co. et al., Complainants,

vs.

The Goodyear Tire & Rubber Co. et al., Defendants.

In Equity, No. 5887.

Wing, J.;

OPINION OF THE COURT.

Suit is brought, in this case, by the filing of the bill of complaint of The Rubber Tire Wheel Company, in which it is alleged that the complainant is the owner of letter-patent No. 554,675, issued to Arthur W. Grant, February 18, 1896. A supplemental bill was filed by The Rubber Tire Wheel Company and the Consolidated Rubber Tire Company, complainants, against the same defendants named in the original bill. The purpose of the supplemental bill is to show the relation existing between the original complainant, The Rubber Tire Wheel Company, and the added complaint to the supplemental bill, to wit: the Consolidated Rubber Tire Company; but the ownership of the patent upon which the suit is brought is alleged to be still in the original complainant.

This ownership is proven by two assignments by Arthur W. Grant to the Rubber Tire Wheel Company, one executed pending the application for a patent and filed in the Patent Office, and another on the third day of December, 1897, after the issuance of the patent. While the pleadings dispute ownership of the patent in the original complainant, no serious contention was made on that issue at the hearing.

The patent in suit is for what is called a carriage tire. The claims of the patent, two in number, are, respectively, for a specific construction of rubber tire indicated in the claims.

The defenses are want of novelty and consequent invalidity of the patent, and non-infringement.

The Judge proceeds to review the features of construction, the objects aimed at and the claims made in the original patent, and concludes his opinion as follows:

In view of the able and elaborate opinion delivered by Judge Thomas, I do not deem it necessary to go into particularities with respect to the reasons for my conclusion. Suffice it to say that, upon an independent examination of the record, I have come to the conclusion, which, in brief, is this: that, while the elements of the complainants' combination are, each of them old and well known, this particular combination of shape of rubber and of flange, and the position of the retaining wires, has not been shown in any previous patents or other publications; that the device, when completed and put upon the market, practically displaced all other forms of tires; that there is abundant evidence of the great usefulness and merit of the invention; that, deductively, the combination is novel and useful, and the patent valid.

The infringement of the defendants is clear. While it is urged by the defendants, in their answer, that they are operating under a patent issued to Burrows, the proof shows that the device shown and described in the Burrows patent is not the one which the defendant is using, but that they have been and are, using the exact device shown and described in the complainants' patent, except that, on the rubber part of the tire used by defendants, there is a thin excrescence of rubber, which performs no function whatever.

Interlocutory decree of infringement will be entered in favor of the complainant, The Rubber Tire Wheel Company, against the defendants, in accordance with the prayer of the bill.

GOODYEAR TIRE AND RUBBER CO.

The above decision by Judge Wing will be appealed by the Goodyear Tire & Rubber Co., and they expect the Court of Appeals to sustain their position. In any case the Goodyear Co. are prepared to take care of all contracts and supply the trade with wing tires. Their factory is running night and day making wing tires and they have built up an enormous business by making an honest quality of rubber. The patent litigation will be taken care of by the Goodyear Tire & Rubber Co. without effect upon their customers.

COL. SPRAGUE AT THE CINCINNATI EXPOSITION.

THE exposition has come and gone, and to say that it was a grand success is drawing it mildly. The dealers and manufacturers were all at their best, and everybody seemed pleased. All agreed that the sharpest hustlers and the business people were the Sprague Umbrella Co., of Norwalk, Ohio. They had a mammoth sign on the outside of the hall, announcing that they would give one of their fine buggy canopies to the dealer who guessed the nearest to the number of dealers in attendance from Monday morning until Friday noon, and when a dealer had registered he was confronted by a nice looking young man, and handed a coupon ticket, and instructed to go to the Sprague Umbrella Co. and deposit the ticket with their name and address and his guess written on it, and retain the coupon for reference. Nearly four thousand dealers did so, and Col. Sprague was on hand at all times to receive them, and after a hearty shake of the hand and a few pleasant words from the ever-genial colonel, the dealer was turned over to one of the ten salesmen that were in attendance, and the men who did not buy at least had the splendid canopies explained and shown to them. The colonel had orders for over three hundred canopies to show for the hard work put in by him and his men. Over five thousand beautiful parasols for children, all containing the name of the Sprague Umbrella Co., were given to the people who called on them during the week. Over twenty-five different fine vehicles, scattered around in different parts of the exposition building, were adorned with a Sprague canopy, and nearly all of the manufacturers of fine vehicles called and arranged with the colonel to use his goods. There was one especially fine canopy in this exhibit. It was a cream English mo-hair with cream, outside fringe of beautiful silk, lined with pink, French broadcloth, and inside fringe of pink silk. It was indeed a "dream," as one enthusiastic dealer remarked, and many said, "No one but Colonel Sprague could imagine such a beautiful creation for a canopy. The readers of THE HUB who saw it will bear the writer out in the statement that Colonel Sprague is the man to invent and make canopies for vehicles.

B. F. Repp, of Bryan, Ohio, guessed the exact number of dealers who attended the exposition, 3,842 being the number, and got a beautiful \$25.00 surety canopy.

Among the many tributes to our martyred President, there are none more touching and few of so high literary merit as the one we reprint from the pen of Col. Jas. H. Sprague, the manufacturer, inventor, and song writer, of Norwalk, Ohio. Colonel Sprague wrote President McKinley's favorite song, "My Dear Ohio Home," and received a beautiful letter of thanks from the President. He is probably the only song writer who ever received this distinction, and he is justly proud of the honor thus conferred.

AN OPPORTUNITY FOR INVESTMENT.

F. E. Boss, of New York City, controls two devices that invite inspection and offer exceptional opportunities for an investment. These consist of a new shaft coupling, that is both a quick shifter and an antirattler, and one that can be used with the plain bolt shaft jack. The other is a "friction nut." This nut is one that can be run on in the easiest manner, but it cannot be run off except by force. It will not jar of, neither will it lose its friction feature by long use. The ordinary axle nut is used, to which is applied the material that gives it the friction grip. This nut can be adjusted so as to keep the wheel snugly upon the arm of the axle without the annoyance of washers. It can be used on any axle, and without material increase in cost. Mr. Boss wants to interest capital to manufacture these articles, or will negotiate with parties to manufacture on royalties. Write him; he has a good thing.

C. COLES DUSENBURY & SON.

THIS well known carriage cloth house have long been recognized as leaders in whipcords, carpets, etc., and they claim to be showing the finest line of these goods yet offered to the carriage trade. They represent four leading mills whose goods they have handled for years, and their long experience has enabled them to bring out the finest kind of goods and to get carriage makers to know what is best and newest. They are experts and understand the making of the goods and can post you on the wearing qualities. Try them.

A GOOD CUSHION

MEANS the main comfort while riding in a carriage. This desirable luxury is attained easily and at very moderate cost by using the Spring Cushion Attachment introduced by the Metal Stamping Co., of this city, nearly a year ago. As shown in illustration, it consists of a sheet steel band grooved crosswise and of cone-shaped springs



CUSHION SPRING.

attached thereto at distances conforming to interior of seat frame. Both springs and band being furnished assembled, all that remains for the trimmer to do is to nail or screw the spring band to bottom of seat frame. It is an extremely simple and labor-saving device and sure to be appreciated by both manufacturer and consumer.

MCKINNON DASH COMPANY.

It may interest some of our readers to know that Mr. John T. Groves, who has been manager of the McKinnon Dash Company at Cincinnati for a number of years, has resigned on account of ill health. He is intending to go South for the winter to try and regain his strength. The company are very sorry to have him leave them, as he has been a thoroughly faithful and honorable man, and has had the good will of all the trade with whom he was doing business. George Monteith, president of the Dash and Carriage Goods Company, is winding up the affairs of his concern, and will take the position of manager vacated by Mr. Groves at Cincinnati, beginning his duties November 15. Mr. Monteith is so well known to the Cincinnati trade that he needs no introduction.

THE BUESCHER MANUFACTURING CO.

THIS company are manufacturers of various lines of brass and plated goods, among which are plated and brass trimmings of various kinds. The firm was organized in 1894, with H. L. Young as president, F. A. Buescher, vice-president, and J. H. Collins secretary and treasurer; and the personnel has remained unchanged. The business soon outgrew its first quarters, a small frame building, and additional buildings were added, until now their new plant is one of the largest of its kind. The main building is 300 feet long and 60 feet wide, with two floors and much basement space. Adjoining this is the engine room, 45 feet long and 35 feet wide; while the foundry is 125 feet long and 30 feet wide; the acid dipping building is 15 by 16 feet; a two-story warehouse is 20 by 100 feet, another has the same ground dimensions but only one story; a stockroom is 27 feet wide and 35 long, and there are other sheds, etc., necessary to the full equipment of so large and complete a plant including a shed for bicycles for the convenience of employees. Altogether, the various buildings afford a floor space of about 60,000 square feet.

TWO IN ONE TO THE FRONT.

THE Sterling Buggy Co., of Rushville, Ind., were certainly well to the front at the Cincinnati Exposition. Mr. C. H. Lambert, in charge, ably assisted by Messrs. O. M. Thomas, J. W. Scharer and D. B. Stewart. Their 2 in 1 combination open driving wagon and top buggy certainly forged to the front, as can be told from the fact that ten car loads were sold to J. F. Judy, of Williamsport, Ia., for his twenty-two stores. Three thousand one hundred lots were sold, but as this company has a yearly capacity for 8,000 vehicles all orders can be promptly filled. Send for descriptive catalogue.

HAVE ENLARGED THEIR PLANT.

KUQUA & Son, carriage builders and dealers of Springfield, O., have just completed a three-story factory, 65 x 100 feet, and fitted it with all the latest improvements in machinery.

PANTASOTE WINS AGAIN.

THE GOLD MEDAL CONFERRED BY THE PAN-AMERICAN EXPOSITION.

It is now nearly ten years since Pantasote began to be shown in the market, and for a number of years after its appearance so great was the prejudice against imitations of, or substitutes for, leather, owing to the wretchedly inferior character of all such goods up to that time, that the sales were very limited; nevertheless wherever Pantasote was given an opportunity to prove its merits it won favor and recognition; a signal victory being the winning of the Edward Longstreth medal of merit, the highest honor conferred by the Franklin Institute of Philadelphia, which is known and respected all over the world for its scientific investigations and impartial judgments.

In awarding the medal the Franklin Institute judges said: "The products possess in high degree the qualities of flexibility and imperviousness to moisture and notable freedom from stickiness or brittleness. The appearance of these counterparts and the excellent adaptability of Pantasote leave nothing to be desired." Later in the report the judges allude to Pantasote as "the best substitute for leather that has thus far been placed on the market."

At the Philadelphia Export Exposition of 1899 Pantasote received the highest award and diplomas of special merit, and at the Pan-American Exposition just closed received the gold medal, the highest award given.

The business of the Pantasote Company has developed to enormous proportions in this country and in Europe. So closely does the material represent leather, which it is made to imitate in several varieties, that it passes for the finest morocco in the luxurious buffet palace



PAN-AMERICAN MEDAL.

cars, the smoking rooms of finest ocean steamships, in the upholstery of high cost carriages, fine office and library furniture and in other uses where leather has previously been the only material adapted for the purpose. It does not deteriorate in strength or usefulness by age, retains the quality of flexibility indefinitely, and is practically fireproof.

Embossed Pantasote is also largely used for artistic chair seats and backs, wall panels, etc.—the embossing being plain or in gold, silver and bronze effects. In fact every use to which leather has been applied for such purposes as referred to is acceptably and in many cases more completely served by Pantasote.

Another use to which Pantasote has been put is worthy of mention; it is displacing every other material in the manufacture of car window shades. As it is not affected by sun or rain and does not deteriorate in strength or usefulness by age and retains the quality of flexibility, indefinitely, it has no equal as a material for this class of goods. A further recommendation is that it can be scrubbed and cleaned by means of soap and water without injury and restored to its original appearance, which can be said of no other material used for the purposes mentioned. The offices of the company are at 29 Broadway, New York city, where the goods in actual use can be seen.

PARRY BUGGIES.

THE Parry Manufacturing Co., Indianapolis, Ind., have issued their catalogue for 1902, which we think the best ever gotten out by this company, which is saying much. It contains large illustrations, some in colors, of the company's buggies, phaetons, surreys, family wagons, etc., the descriptions being printed on half-sheet slips on colored paper and printed with blue ink. The company have adopted a system of naming, giving each a proper name, such as "Acton," "Bates," "Dalton," "Empire," each class in alphabetical order. The volume is 8 by 12 inches. The cover is illuminated, showing representatives of various nationalities looking at catalogues of Parry buggies at the corners and "Parry Buggies" as the centre in large letters on red ground. It is one of the kind that will be kept.

WILL REMOVE TO MORE COMMODIOUS QUARTERS.

MESSRS. FLANDRAU & Co., 372, 374, and 376 Broome street, announce that they have leased the seven-story and basement buildings on the plot bounded by Broome, Marion and Elm streets, three blocks nearer Broadway than their present location, which they have occupied as a carriage repository since August, 1874, moving there from East Eighteenth street, where the concern, as A. S. Flandrau, was established in 1869. Messrs. Flandrau & Co. have been considering property in various parts of the city uptown, which could be readily reached from all parts of the Borough of Manhattan and Greater New York, and have decided that it would be wiser to remain in the same street, where they have been so long located, simply moving to very much enlarged premises, and have all their vehicles under one roof, giving them a larger repository and factory quarters, with more modern facilities for doing business.

Their new quarters face on three streets, and thus have plenty of light. The new rapid transit subway passes the building on Elm street, the Fourth avenue cars pass the door at the corner of Broome and Marion streets going downtown, and Grand and Centre streets going up, a block away. The Broadway cars are two blocks from the building, the Third avenue five blocks, the elevated roads to Grand street being five and seven blocks; vehicles from the Brooklyn Bridge pass the door now to Broadway, or to the east side of the city, and when Elm street is finished will pass on the Elm street side. It is probable the approach to the new East River Bridge will end in Elm street directly back of their new repository; the Jersey City and Hoboken ferries easily converge towards their new quarters; Bridge No. 3 terminal when completed would be near.

The trade of Messrs. Flandrau & Co. has increased very largely in the last three years, being larger than for any other years in the history of their business. The quality of the work has steadily advanced every year, and is now ranked as of the highest, and are exclusively of their own production. Their very large repair business has outgrown the present facilities. The new building not only has a carriage freight elevator, but passenger elevator as well; will be lighted by electricity throughout, and with light on three sides and painted so as to properly diffuse it. This very desirable adjunct to a carriage repository is quite marked, especially as the ceilings are high from cellar to roof. Their present quarters have been occupied as a carriage repository and factory since the building was erected in 1856—a period of forty-five years—continuously, and the present removal does not involve change of location, but provides more adequate facilities for the large growth of their business. The removal will take place during the months of February and March, 1902.

OFFICERS OF THE MOSSBERG & GRANVILLE MFG. CO.

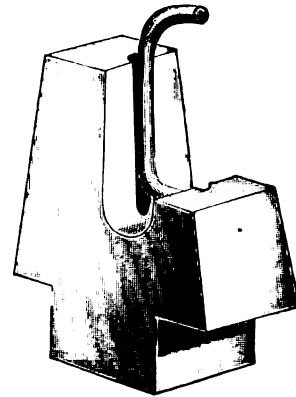
SEVERAL important changes have recently been made in the management of the Mossberg & Granville Manufacturing Company, Providence, R. I. At the recent election the following, who have not heretofore been associated in the management, were made directors: W. W. Orr, V. I. Cumnock, E. C. Moon, A. R. Whitney, Jr., and Joseph W. Harriman, all of New York and Elisha H. Howard, of Providence. The Board of Directors organized by electing Howard C. Smith, of New York, president; Elisha H. Howard, vice president, and E. C. Moon secretary and treasurer. V. I. Cumnock was made chairman of the executive committee. The resignation of W. W. Gibbs, for some time past general manager, was accepted and in his place George A. Clark, formerly of Lowell, Mass., has been appointed. The business of the company at the present time is in a flourishing condition and various new patterns of tools and machines have been added to its already very extensive catalogue. The New York office of the company (secretary and treasurer) is at 100 William street.

THE AMERICAN BLACKSMITH.

THE latest addition to vehicle trade literature is *The American Blacksmith*, published at Buffalo, N. Y. The first number is before us, and while modest in its promises it is attractive in appearance, and gives indications of having come to stay. The field which its title indicates to be its special one is large, and offers excellent opportunity for active and profitable work. THE HUB extends best wishes.

COVERT'S ROPE TIE MAKER.

THIS tool is very practical and inexpensive for the purpose of making rope ties. It is simply a steel die, grooved to hold and form the wire clamp around the rope. After the rope is placed in position one or two blows with a hammer securely fastens the wire clamp. The die is made to fasten in any ordinary vise. It fills a



ROPE TIE MAKER.

long felt want for use in making horse and cattle ties in a moderate way. Three dozen sets wire clamps furnished with each die. All interested in saddlery, coach or general hardware should have their complete catalogue.

J. B. ARMSTRONG MANUFACTURING CO.

THE J. B. Armstrong Manufacturing Co., of Flint, Mich., manufacturers of carriage and other vehicle springs, showed a line of their goods at the Dealers' Exposition. This company are the American manufacturers of the Armstrong single leaf spring, of which they produce about 2,500 a week, the total output of the plant being about 4,500 sets. They employ about 225 workmen. The company was incorporated in 1896, with R. T. Armstrong as president. Two of the most popular salesmen on the road represent this house. These are Walter T. Taylor and G. L. Taylor, both of whom are recognized as active, energetic men, who are always given a hearty welcome by the carriage trade.

WILLIAM W. BOOB.

THE latter part of November Mr. William W. Boob, manufacturer of and wholesale dealer in wheels, gears, carriage hardware, etc., removed his plant from Central Hall, Pennsylvania, to East Seventh street, Cincinnati, Ohio. Mr. Boob has for a number of years carried on a very successful business at Central Hall, but owing to his arranging to enlarge his business he decided to move to Cincinnati, where he will be in more direct communication with the wholesale carriage building trade and will also be benefited by having better shipping facilities.

THE RICHMOND VEHICLE CO.

THE Richmond Vehicle Co., of Richmond, Ind., certainly had their share of business at the Cincinnati Exposition, as 1,750 vehicles were sold by them during the week. In style and finish their vehicle ranks with the high grade of work and the reputation of this firm is such that every dealer knows that all vehicles sent out will, up to the sample show, which means a great deal to the dealer. They have a capacity of 5,000 finished vehicles a year, and can fill all orders promptly. Send for catalogue.

KEUFFEL & ESSER CO.

THE above named company are extensive manufacturers and importers of drawing materials and surveying instruments in New York City. They have issued a pocket edition of their catalogue—being a reproduction of their large catalogue. This company protect their customers by marking their goods with the firm name or initials, and guarantee all goods so marked, as what they sell is manufactured by them, and they can be obtained from all reputable dealers in the United States and Canada. The price of this pocket edition is 50 cents a copy.

AMERICAN TUBULAR WHEEL.

THE American Tubular Wheel Co., of Pittsburg, Pa., have introduced a tubular steel wheel of peculiar construction, which merits a close examination. The manner of securing the spokes, at both hub and rim, insures strength without an undue addition to weight. A machine turned bolt passes, with neat fit, through the rim and threads into the upper end of the spoke, which is provided with countersunk copper washer, as shown. A pin, riveted at both ends, passes through both spoke and bolt and prevents the bolt from turning out. The hub is tapped to receive 5-16" steel studs 2 1/4" long, which project from the hub 1 3/8"—the spoke, externally threaded, fits neatly over the stud and is threaded into the hub 5/8" to shoulder as shown. It is impossible to jar or wrench these connections loose, yet in a case of a broken spoke it may be readily replaced. These wheels have been put to severe tests and have proved successful in every case. These wheels are intended for automobiles, and are made of steel throughout, the spokes being of cold drawn seamless tubing. Interested parties should write to the company for further information.

WON THE CANOPY.

B. F. RAPPE, of Bryan, O., was well repaid for attending the convention at Cincinnati, as he won the handsome canopy which was given by the Sprague Umbrella Co., of Norwalk, O., to the one guessing nearest to the number of dealers registered from Monday morning, November 18, to Friday, the 23d at 1 o'clock. Mr. Rappe guessed the exact number and was presented with a handsome \$25 canopy by Colonel Sprague himself. Mr. Rappe was not the only one the Colonel made happy, as he gave away several thousand miniature canopies or umbrellas to all visitors at his exhibit.

WINNERS OF A GOLD MEDAL.

We desire herewith to call your attention to the fact that "The Hay-Budden Anvils have been crowned again, and that this mark of honor indicates that these anvils are the standard for quality, not only in this country, but all over the world." The wonderful popularity of



PAN-AMERICAN MEDAL.

these American made anvils, of which over sixty thousand are in use, is justly recognized by this award. No man makes a mistake who buys one of these anvils, whether he is a small country blacksmith or a user of the largest anvils made.

RED CROSS JAPAN.

EDWARD SMITH & Co., varnish makers and color grinders of New York, manufacture a very pale quick drying japan for general use in the carriage shop, which they recommend highly. They are sending out a lithograph print of a Jap in costume balancing the trade mark of the company on a slender wand, one end of which rests upon his chin.

NOW BACKING THE WINNER.

J. T. KELLY, representing the Olds Wagon Works, of Fort Wayne, Ind., in Iowa and Nebraska, has now taken the line of "Thoroughbreds" made by the Keystone Carriage Co., of Cincinnati for the same territory.

RESIGNED FROM THE NOLAN PUBLISHING COMPANY.

CHARLES D. JACOBS has resigned his position as secretary and treasurer of the Nolan Publishing Company, of Philadelphia, publishers of the *Implement Age*, *Export Implement Age* and *The America Fertilizer*, and has taken a position with Deek & Collins, paper makers, of Philadelphia. For two years Mr. Jacobs acted as general manager, owing to the ill health of Mr. P. W. Nolan. The change was made by Mr. Jacobs, solely with a view to bettering himself, as his relationship with the Nolan Company was of the most friendly nature. He will visit the implement trade as heretofore, but will try to instruct them as to quality of high grade paper required for catalogues.

TIMKEN ROLLER BEARING AXLES.

THE Timken Roller Bearing Axle Co., whose headquarters are at St. Louis, Mo., are completing a factory at Canton, Ohio, for the manufacture of their Patent Axle. Canton, Ohio, was selected on account of it being contiguous to the steel producing section, cheap freight rates, central location, etc. The factory, which is modern in every detail, is equipped with the finest machinery that money can buy. Many of the machines are made specially for the work in hand. The demand has been so very great for this axle that it necessitated having every modern facility to manufacture them. The wholesale manufacturers are taking them up largely both in the East and West. The two-year guarantee placed on them convinces the most skeptical of their practicability, and this, together with their simplicity, makes them ready sellers.

In addition to the small sizes, the company is now building up to the 3-inch. They have several thousand of the heavy sizes in use, all of which are giving perfect satisfaction. Some of the largest firms in the country are equipping their wagons with them. Orders are also coming from Canada, England, Germany, Russia and Africa. There has been a long-felt want for a practical roller bearing axle, to carry both light and heavy loads, and the success with which this axle has met demonstrates beyond a question of a doubt that it fills this want. The company is making special propositions to wholesale manufacturers for cataloguing their axle the coming season, and it will pay any firm interested in anti-friction axles to write for this proposal, which has special favored inducements, that is met with ready acceptance by the trade. The advertisement appears on another page. Branch offices have been established at New York, Boston, Chicago, Philadelphia, Baltimore, Providence and Washington. The company received the highest award at the Pan-American Exposition for the best anti-friction axle.

PRATT & WHITNEY CO.

THE Pratt & Whitney Co., of Hartford, Conn., manufacturers of ironworking machinery, such as lathes, planers and shapers, milling, drilling, boring, tapping and other machines too numerous to mention, are sending out a three-hundred-page illustrated general catalogue, and one of their standard taps, dies, ratchets, reamers, punches, etc. These illustrate an almost unlimited number of articles required by iron workers, and should be in the hands of every man in the line who wishes to keep up with the times.

VERY BUSY PEOPLE.

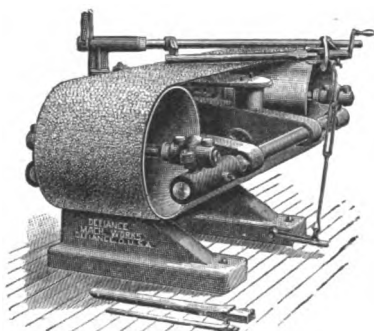
THE Columbus Saddlery Co., of Columbus, Ind., were very busy people at the tri-State convention at Cincinnati. Their display was most complete and received much favorable comment. Mr. Schwartzkopf was in charge with his assistants. This company has just finished a \$6,000 contract for the United States government of express and cart harness. The fact that they are tanners and make their own leather, no doubt, accounts in part for the high grade and low price of their harness.

PIONEERS IN THE MAKING OF CANOPIES.

THE Troy Carriage Sunshade Co., of Troy, O., are pioneers in the manufacture of folding canopies. Their exhibit at Cincinnati Exposition was a fine one and results were more than satisfactory. They make canopies for every conceivable style of vehicle and in all sizes and shapes. Mr. E. E. Edgar was in charge and succeeded in booking many large orders. Write for catalogue and prices.

IRON FRAME BELT POLISHING MACHINE.

THE illustration herewith represents a No. 4 Iron Frame Belt Polishing Machine, manufactured by the Defiance Machine Works, Defiance, O., with a polishing belt eighteen inches wide, which has been designed with the greatest care for polishing wagon and carriage spokes, neck-yokes, single-trees whiffletrees, handles of all kinds, and various other classes of wood work requiring a high finish. It is heavy and well made and very convenient to operate, and a large amount of perfect work can be accomplished with it. The frame, of iron, consists of heavy cored sections of neat design and provided with a broad floor base, so constructed that the polishing belt can be instantly placed on or removed from the machine without disconnecting any of the parts. The polishing belt pulleys are eighteen inches diameter, eighteen-inch face, and supported upon heavy steel spindles running in long, genuine babbitt metal, self-lubricating



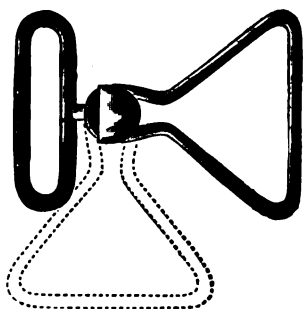
BELT POLISHING MACHINE.

bearings, so enclosed to prevent the admission of dust and dirt. They are balanced on our patent balancing system, and guaranteed to run at the rate of a mile per minute and upwards, entirely free from jar or vibration. They are supported upon heavy steel parallel bars fitted through bored and reamed holes in the main frame, making a substantial job. The polishing belt is 18" wide, 15' long, made endless, with the outside surface covered with flint quartz, and it is strained outward by convenient hand wheels on the inside of the frame, out of the way to tighten the belt, having an adjustment to accommodate a variation of 2' in the length of the belt. The work to be polished is held in a very ingenious and convenient attachment which can be adjusted to any angle across the belt for either short or long work, and it is fitted with a spring balance to automatically lift the attachment from the belt when not in use. The work is held at one end in a revolving chuck, and the other end turning in a circular shoe, and it is presented to the action of the polishing belt by the weight of the operator's foot upon the pedal at the base of the machine, and while resting upon the belt is rotated by hand until polished. One or two revolutions is sufficient for work that is well turned and shaped.

The tight and loose pulleys are attached to the machine. They are 10" diameter, 6" face, and fitted with bronze brushes and self-oiling devices and a convenient belt shifter for starting and stopping the machine. They should run 1,000 turns per minute, giving 5,000 feet speed to the polishing belt.

COVERT'S "EASY" BLANKET GIRTH FASTENER.

SIMPLE to operate. Turn the loop with either hand to either



BLANKET FASTENER.

right or left and slip over the head. It is claimed to be the best and most convenient fastener made.

TWENTY-FIRST ANNUAL CONVENTION OF THE SHERWIN-WILLIAMS CO.

The twenty-first annual convention of The Sherwin-Williams Co., the great paint manufacturers of North America, was held at Cleveland, November 4 to 9. It was in many ways the most successful meeting the company has ever held. The Sherwin-Williams Co. has just rounded out the largest year in their history—the largest in total business and also in the percentage of gains in all departments. They are looking ahead with the greatest confidence to the new year just starting, and expect still larger gains all along the line. Fifteen new salesmen have been added to the traveling force of the company, and many new buildings and much new equipment added to the manufacturing facilities. In addition to the entirely new plant at Newark, N. J., the company has doubled the size of its Chicago factory, added a new building to the Montreal plant and erected three large buildings at the Cleveland plant. The campaign that began when the twenty-first annual convention adjourned will be the most aggressive and the most progressive that The Sherwin-Williams Co. has ever conducted.

"Co-operation" was the keynote of the meetings. It was meant to convey the strong "working together" that exists between the company and its employees, and the company and its customers. Every representative went from the convention imbued with the idea that:

"You pull and I pull
And all pull together,
Keeps the pace and wins the race,
In spite of wind and weather."

The customers of The Sherwin-Williams Co. may expect more help and better service than ever before. There were in attendance at this year's convention one hundred and twenty-five men, consisting of the traveling representatives and managers and officials of the company. The traveling force numbers at present one hundred.

The daily sessions were devoted solely to business. The work of the past year was carefully reviewed. The new lines of goods, and new advertising were explained and discussed. All plans and methods for the new year were thoroughly handled. Everything was done that could better prepare the representatives for more effective work and give the management a broader view of trade conditions and closer grasp of the paint and varnish situation. Three evenings out of the week were devoted to pleasure; a smoker in the company's club room on Tuesday evening; a theatre party on Wednesday evening, and a banquet on Thursday evening. The banquet was held in the auditorium of the Cleveland Chamber of Commerce, and was given for the visiting representatives and managers and the employees of the Cleveland plant. Five hundred covers were laid, and the evening proved the most enjoyable of the week.

A convention song is written every year, and this year it went to the tune of "The Last Cigar," and ran as follows:

O we're an earnest, loyal band
In hearty work allied;
We carry beauty through the land,
And spread our colors wide.
And as we travel distant miles,
With hearts so true and strong,
Our watchword every care beguiles
And fills our work with song.

CHORUS.

We shout S. W. P.,
Till all the world shall be
In tints as bright as the morning light
On every land and sea.

There's hosts of others after trade
Who work their schemes full strong,
But all our plans so well are laid,
We lead them right along.
Our paint will always stand the test,
It backs up all we say,
And so our sales top all the rest,
Increasing every day.

CHORUS.

S. W. P. we sing
'Till we make the wide world ring.
It proves its worth o'er all the earth;
S. W. P. is king.

We've spread our paint on Britain's shores,
And Africa's sunny land,
In far Australia's leafy bowers,
On India's coral strand.
Go North or South or East or West,
Wherever man can roam,
You'll find it everywhere the best,
Too big to stay at home.

CHORUS.

And so we shout with glee,
In chorus full and free;
If you want the best, forget the rest
And choose S. W. P.

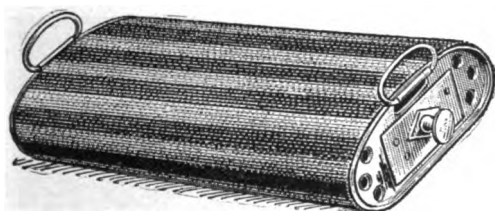
The convention also celebrated the victory of the cup defender *Columbia*, which was painted with The Sherwin-Williams paints, by frequently shouting the chorus:

Columbia, the gem of the ocean,
Sailed away from the Shamrock so free;
And we just have a sly little notion
Why the cup stayed this side of the sea;
For her owners were wise in their choosing,
And they bought the best paint they could see,
Sure, there could be no danger of their losing,
For they put on our S. W. P.

You can bet on our S. W. P.
It's the best on the land and the sea.
And there can be no danger of your losing
When you bet on our S. W. P.

FOOT WARMERS.

THE time is here when to enjoy a ride in a carriage or sleigh a foot warmer is a necessity. Our fathers had a warming pan, which started out hot, but soon grew cold. Then came the fire brick wrapped in cloth, and other devices, but all were failures and cold feet was the rule until the introduction of the Lehman heater, man-



LEHMAN FOOT WARMER.

ufactured by Lehman Brothers, of New York. These proved warmers indeed, never too hot for comfort, and retaining their heat longer than any other ever introduced. Dealers cannot afford to be without these heaters. See the company's advertisement and write for further information.

THE PARSONS VEHICLE CO.

THE Parsons Vehicle Company, of Columbus, O., have issued a large poster showing nineteen of their original designs of buggies, surreys, phaetons, drags, etc., in colors. All the carriages shown have been designed by Charles J. Parsons. They all possess novel features and represent lines that must sell well where carriages, not cheap wagons, find a market.

NOW WITH FLOOD & CONKLIN.

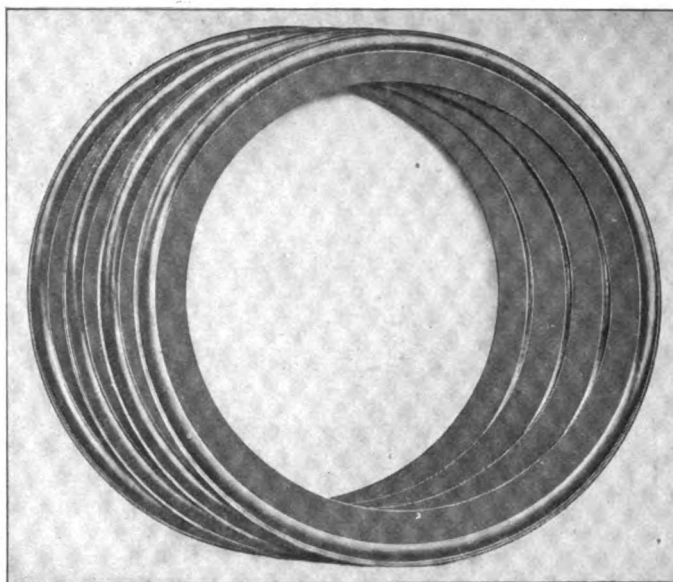
E. B. WILLIAMS, who for several years represented the Buffalo Spring & Gear Co. in the East, and more recently with the Keystone Wagon Co., is now selling varnish for the Flood & Conklin Co., of Newark, N. J. Mr. Williams is thoroughly familiar with this line of business, having spent several years selling varnish. We wish success for himself, also his new company.

CALENDAR FOR 1902.

PHINEAS JONES Co., of Newark, N. J., the well known vehicle wheel makers, have issued a rather unique catalogue in colors. It is entitled "Making Up His Deposit," after the well known painting by Witkouski. They will be pleased to mail one to any of their readers on receipt of four cents in stamps to cover cost of mailing.

FLANGE RINGS FOR TIRES.

THE use of flange rings for rubber tires has created a new industry in connection with the vehicle tire trade. Three leading types of the endless solid tire require this form of flange. These are the Stevens' tire, made by the Auto. Dynamic Co.; The Double Lock, made by Dewes & Whiting, and the Wheeler, made by the India Rubber Co. This class of tires have many advantages, and for some classes of work absolutely indispensable. They are all made endless or of the ring formation, and not having the elongating properties of a deflated pneumatic, it is necessary to make them the exact size of the



FLANGE RINGS FOR TIRES.

centre of the channel and then make one side, at least, of the channel detachable. This detachable side or "flange ring" requires very careful treatment, to obtain strength and yet keep down the weight. To carry out the idea of the rubber man without making any interference with his objectives; to give not only the tire, but the whole wheel, the proper amount of support, requires a knowledge that can be gained only by careful study and long experience. The illustration of this article shows rings which probably were the most difficult to produce of any ever made. The photograph was taken from some of the rings manufactured by Dewes & Whiting, who are the pioneers of the industry in America.

WISCONSIN CARRIAGE COMPANY

THE Wisconsin Carriage Company, of Janesville, Wis., carriage builders for the trade, have just issued their illustrated catalogue for the season of 1902. It is neatly printed on fine paper, in orange and black, and has a chocolate brown cover, embossed but not colored. They show illustrations of surreys of different styles without tops, and with canopy, and extension tops; also driving wagons with black and plain gears, top buggies, Stanhopes and coming wagons in pleasing variety. Dealers interested should write for a copy.

BACK THE WINNER.

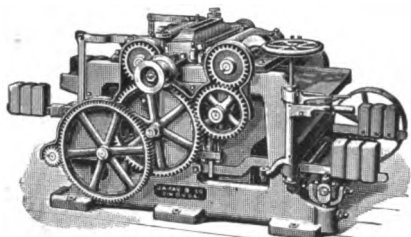
THE Keystone Carriage Co.'s (Cincinnati) line of "Thoroughbreds" shown at the tri-State convention were all winners. There were thirteen different styles shown, among which were the following popular Thoroughbreds: Allerton, Star Pointer, Onward, Direct, Imp, Dolly Dillon and Amorel. Mr. Lucas was in charge and gave his personal attention to the exhibit. The firm certainly shows a fine line of work and dealers wanting a salable line of vehicles should certainly "Back the winner."

WITH SCHLEGAL MANUFACTURING CO.

RALPH LANDERS, who is well known to the carriage trade throughout the Eastern territory, will in the future sell coach lace and canopy fringes manufactured by the Schlegal Manufacturing Co., of Rochester, N. Y. Mr. Landers will certainly have a fine line of trimmings to show and we are sure he will be able to please his most fastidious customers.

A NEW AND IMPROVED PLANER.

We illustrate a new machine for fine planing just placed on the market by J. A. Fay & Egan Co., of 421 to 441 West Front street, Cincinnati, O., and patented December 19th, 1899, February 6th, 1900, and May 8th, 1900. The more noticeable mechanical advantages in this machine are: 1st—The feed rolls are water-gear and hung pivotly. 2d—The pressure for each roll is cushioned on a spring, giving great advantage in a very fine cut, and enabling the



NEW FAY & EGAN SMOOTHING PLANER.

operator to plane smooth without wave. 3d—The bed raises and lowers on long inclines. 4th—The feed is so arranged that with one lever the speed can be increased or reduced, started or stopped, instantly. The manufacturers will be pleased to furnish any of our readers who may be interested, and will write them prices and full particulars of this or any other machine for working or cutting wood, and will also forward their large new illustrated poster, showing this and other machines, free.

IRWIN'S DETACHABLE TIRE.

THE Irwin Detachable Tire, advertised in this month's HUB, is a new candidate for public favor. The inventor states in his patent papers that "This invention relates to improvements in that class of double-tube pneumatic tires that are readily detachable from the wheel-rim, and has for its primary object to combine simplicity, durability, and ready detachability in such a tire, as well as to have it capable of use upon automobiles and other power-propelled vehicles, as well as upon bicycles, tricycles, and the like.

"Other objects of the invention are to have the tire securely attached to the rim with or without inflation of the inner tube, to provide a good seat for the inner tube, notwithstanding the separation of the opposing edges of the outer tube or casing when applied to a wheel-rim, to positively prevent creeping of the tire upon the rim, and to provide a tire readily adaptable to either a wooden or metallic rim without material diminution of the strength of the rim and which may, if desired, be cemented to the rim."

To accomplish this the inventor constructs a rim with a channel having a slight undercut to its sides, into which the edges of the casing enter, and are secured by pressure into the channel and this undercut, which holds the tire in place, but which by external pressure against the sides the edges can be released so as to admit of the casing being removed from the rim. By the use of lugs placed in the channel the creeping of the tire is prevented. For wood wheels a special steel channel is provided, the interior of which partakes of the general characteristics of the wood rim. Another pattern of channel is made for wheels with wire spokes. Notwithstanding the ease by which the tire can be removed, it is so held in the channels that it can neither come off when in use, neither can it creep on the rim. The patentee is desirous of entering into a contract with parties for its manufacture, and will give all further details to parties who really want to put it on the market. Address Herbert E. Irwin, Galesburg, Ill., for further information.

THE HARTFORD RUBBER WORKS COMPANY

HAVE issue a little leaflet, principally devoted to information regarding the Hartford tire, but full of information of value to all users of rubber tires. Write to the company at Hartford, Conn., for a copy.

BUILT-UP WOOD SPECIALTIES.

THE Dann Bros. & Co., manufacturers of carriage woodwork, gears, etc., have bought out the Bowers Manufacturing Co., of Newark, N. J., manufacturers of built-up wood specialties and have moved the machinery, etc., from the Newark plant to New Haven, and now have the machinery in operation. Mr. R. A. Bowers is now associated with the New Haven firm, who will manufacture a full line of veneer specialties for carriage and wagon roofs and panels.

NOW WITH THE GALION WAGON & GEAR CO.

H. J. McCULLOUGH, who for many years was manager of the Highland Buggy Co., on November 10 accepted the position of general manager of the Galion Wagon & Gear Co., Galion, Ohio. We are confident Mr. McCullough's friends will be pleased to know of his connection with an enterprising firm such as the Galion Wagon & Gear Co. are known to be.

ARE YOU WITH US?

THE Rex Buggy Co., of Connersville, Ind., was at the tri-State dealers' convention at Cincinnati with eighteen different styles of up-to-date vehicles. Mr. Harris was in charge with thirteen assistants and all were kept busy. The success of this firm has been phenomenal. They now have a capacity of 25,000 finished vehicles a year, and don't seem inclined to stop at that. An order placed with them is sure to be filled promptly.

AMERICAN VEHICLE WOODSTOCK ASSOCIATION MEETING.

THE meeting of the American Vehicle Woodstock Association at Cincinnati, November 6th and 7th, was well attended, and much interest was shown as it is being demonstrated more and more that proper organization is a very powerful factor, and means much to the manufacturer who is trying to get all his goods are worth.

After the roll call and reading of the minutes of the previous meeting all present were called upon for an expression regarding rough and finished stock on hand, the supply in sight and the cost of same. Then the demand. The result was surprising in showing the great scarcity of raw material—not only by one or a few, but by everyone without exception. As compared with last year at this time, taking an average of the reports, the rough stock on yards and in sight is at least 50 per cent. short, and the price from 15 to 25 per cent. more, according to location. In fact, the question of raw material is a "burning one," and this at a time when the weather has been most propitious. What will it be when roads become impassable? Think it over. Compile your own answer.

The demand is in striking contrast to the supply, as everyone reports very satisfactory demand, and some much more than they can attend to. In short, the demand is good. These facts resulted in the adoption of the following resolutions:

Resolved, That the American Vehicle Woodstock Association recommends to all manufacturers in this line, members and non-members, that they refrain from making contracts for any stipulated quantity for delivery in any given period or at any stipulated quantity for delivery in any given period or at any set price—that you keep in position to make your prices conform with any increased cost at any time. That you sell your goods "your grade and inspection," and thereby obviate one of the most unsatisfactory features of the woodstock business, viz., letting the buyer make the grade or cull under every and any pretext.

Resolved, That in view of the great scarcity of raw material throughout the various sections of the country, increased cost of same, and labor and supplies, that prices should be advanced 15 per cent. over the prices heretofore adopted by the association.

Resolved, That if any new member of the association has not changed his price-list to conform with the official list, he should do so at once. Those "outside the fold" are requested to do likewise, because buyers only recognize one list as standard, and that is the association list.

The annual meeting takes place the second Wednesday in April, 1902, but it is very likely that a special meeting will be held some time in January. The association is growing stronger every day, and it is but a little while until it will include every manufacturer of vehicle woodstock. So it is recommended that any one who has not as yet joined should do so at once. It is a good thing, and you cannot afford to stay out. Write J. E. Buscher, secretary and treasurer, Louisville, Ky., for application blank and full information.

It's a purty mean man who will break up a settin' hen in the mornin' then go an' set himself in a grucery store all day.

Obituary.

CLEMENT STUDEBAKER.

CLEMENT STUDEBAKER, president of the Studebaker Manufacturing Company, of South Bend, Ind., died at his home in that city on November 27, in the seventy-first year of his age. Mr. Studebaker was born near Gettysburg, Pa., March 12, 1831, and when but four years of age his father moved from that place to Ashland, O. He there established himself in the business of blacksmithing and wagon making, where, with him Clement, as well as the brothers Henry and John M., learned the trade. Clement obtained his education in the schools of that part of the State, and in 1850 went to



CLEMENT STUDEBAKER, PRESIDENT OF THE STUDEBAKER MFG. CO., EX-PRESIDENT OF THE CARRIAGE BUILDERS' NATIONAL ASSOCIATION.
BORN MARCH 31, 1831, DIED NOVEMBER 27, 1901.

South Bend, Ind., where he taught school for two terms, and assisted in the blacksmith shop of a manufacturer of threshing machines. In 1850 he decided to start business for himself, and with his older brother, Henry, opened business under the firm name of H. & C. Studebaker, the combined capital of the two being \$68. They went to work with a will, and slowly laid the foundation for the great industry now bearing the family name. They were not without their share of ill fortune, but nothing daunted them. They were skilled workers, reliable and industrious and ambitious. They prospered, but Henry's health failing him, he sold his interest to his brother J. M., and retired to a farm. The change brought in new capital, and the business was enlarged, wagons were built, and were sold, or traded with the farmers for produce of some kind. Later on, Peter E., who had acquired a business training in Goshen, Ind., became a member. He had a genius for finance, and was a capital salesman. J. F., the youngest of the five brothers, learned carriage building, and he, too, became a member of the firm. The first great venture was the building wagons for the United States Government, for western service, and for the war of secession, and in 1868 the company was chartered with Clem. Studebaker as president. J. M. Studebaker as vice-president; P. E. Studebaker, treasurer, and J. F. Studebaker, secretary, all of whom are dead except J. M. Studebaker, and as years followed years the plant grew, until now it is without doubt the largest wagon and carriage factory in the world. The South Bend plant occupies one hundred acres of ground, covered with immense buildings for manufacturing and storing ve-

hicles, while in various cities are located large repositories for the sale of the goods, and throughout the world the Studebaker wagon is recognized as a necessity. It is no reflection on the other brothers to say that the presiding genius of this great industry was Clement Studebaker, ever the clear headed, careful, conscientious, courteous, business man; a man that could be trusted in all emergencies, and one whose genius was conceded by all associated with him. In his life outside of that of business, Mr. Studebaker was always prominent. He was active in political life, but would not accept elective office. He was one of the delegates to the Chicago Republican Convention of 1880, also a delegate at large in 1888. President Harrison appointed him as a delegate to the Pan-American Congress in 1889 and 1890. He was one of the commissioners to the Paris Exposition, president of the board of World's Fair managers at Chicago in 1893, one of the trustees of the Chautauqua Assembly for years, and at one time its president. He was also directly connected with various business enterprises, a member of the Masonic order, and an Odd Fellow. He was one of the first members of the Carriage Builders' National Association, and was one of its first vice-presidents, and president in 1886. An earnest advocate of the Carriage Builders' Technical School, and one of the subscribers to the original fund, and it was he who proposed the adoption of the Chautauqua system which led to the corresponding class now so prominent a feature of the school. In his early manhood he became a member of the Methodist Church, and all his life was an active worker, twice being a lay delegate to the General Conference of the church, and for fifteen years a member of the book committee having charge of the national publication houses of the church, and one of his last acts was the providing of funds to insure the building of St. Paul's Methodist Church, now near completion in South Bend, and zealously aided Mrs. Studebaker in the erection of the Milburn Memorial Chapel, in the memory of her father. Few men have had a more active life, and few have so well earned the respect accorded him as Clement Studebaker, of honored memory, and THE HUB joins in mourning the loss of a man so good and great.

FREDERICK S. NEWELL.

FREDERICK S. NEWELL, president and treasurer of the Bain Wagon Works, of Kenosha, Wis., and president of the Chicago-Rockford Hosiery Works, died at his home in this city on November 8. Mr. Newell had been ill for many months with a chronic pleurisy, and his death had been expected for several days.

The death of Mr. Newell marks the passing of one of the best known citizens of the city, where he lived most of his life, and was closely connected with the development of its manufacturing interests. He was a son of Theodore Newell and was born in Southport, now Kenosha, on June 6, 1845. He was educated in private schools and at Yale, and in 1863 he returned to Chicago and went into business with his father, who was then extensively engaged in the manufacture of lumber. He remained in Chicago for several years, when his health failed and he was forced to spend several years traveling. On his return from abroad Mr. Newell went to Chicago and organized the White Cloud Lumber Co., in which business he remained until 1878, when he returned to Kenosha and entered the office of the Bain Wagon Works. At the incorporation of this company four years later Mr. Newell was made secretary of the company, which office he held until the death of Edward Bain, when Mr. Newell was made president of the company.

In January, 1878, Mr. Newell married Miss Frances Bain, a daughter of the late Edward Bain. He is survived by a widow and two children.

JACOB C. PARR.

JACOB C. PARR, a pioneer wagon manufacturer of Irwin, Pa., died at his home on October 23d, after an illness of six months, from a complication of diseases, aged 51 years. Mr. Parr had until about a year ago enjoyed the best of health, when the effects of an accident which happened to him about ten years ago appeared and the amputation of his right foot became necessary. This was about six months ago and since then he has been on the decline. Mr. Parr was one of the largest stockholders in the Parr Wagon Company here, which was lately incorporated with a capital stock of \$45,000.

HOMER D. WINCH.

HOMER D. WINCH, hub and spoke manufacturer of Ft. Wayne, Ind., died October 27 at Poplar Bluff, Mo.

CINCINNATI EXHIBITS.

Continued from page 422.

TIMKEN ROLLER BEARING AXLE Co., of St. Louis, Mo., showed an assortment of axles from 3 in. in size down to the lightest speed wagon size, all equipped with their patent roller bearings. There was also a number of wheels equipped with these axle bearings. The test of time and experience has demonstrated the scientific and mechanical value of these axles to the satisfaction of all who have used them. Messrs. W. R. Timken, J. C. Montieth and C. E. Staley were in charge of the exhibit.

J. B. TIMBERLAKE, of Jackson, Mich., exhibited a line of rails and plated work.

TROY BENDING Co., of Troy, O., bent woods. G. W. Conrad in charge.

UNION CITY BODY Co., Union City, Ind., traps and buckboards. C. C. Adelsperger in charge.

VEHICLE APRON & HOOD Co., Columbus, O., a new device for hood and apron of practical utility. J. P. Gordon, C. C. Daugherty and W. R. Daugherty in charge.

THE VICTOR RUBBER TIKE Co., of Springfield, O., occupied a room for display of goods and another for the operation of machines for putting them on. The outer room was handsomely furnished and decorated. Samuel Siddall, manager of sales; E. E. Coate, Jno. J. Webb, C. E. Bradish, Jno. W. Pohlman, F. E. Wilson and Ed. Luger attended.

WARNER POLE & TOP Co., of Cincinnati, O., spacing in north corridor.

IRA. D. WASHBURN Co., Cincinnati, O., paints and painters' supplies, space in south hall balcony.

WESTON-MOTT Co., Utica, N. Y., exhibited a full line of axles welded and shaped; also wire wheels. These are known everywhere as standard goods of the highest excellence.

WEGNER MANUFACTURING Co., of Detroit, Mich., space in south hall, second floor.

C. R. WILSON CARRIAGE Co., Detroit, Mich., showed a finely made depot wagon body.

THE WRENCH & DUST CAP MANUFACTURING Co., of Cedar Rapids, had desk only.

FRANK WEISMANTEL, Springville, N. Y., shaft coupling. Frank Weismantel, Jr., in charge.

MISCELLANEOUS.

THE BAKER-VAWTER Co., Chicago, Ill., account books.

THE CARRIAGE MONTHLY, Philadelphia, Pa.

THE CARRIAGE DEALERS' JOURNAL, Troy, N. Y.

FARM IMPLEMENT NEWS, Chicago, Ill.

GRAND RAPIDS ENGRAVING Co., of Grand Rapids, Mich., in charge of Chas. Marshall, showed a lot of catalogues made for prominent firms by this house, which reflect the greatest credit. Mr. Marshall is a practical carriage builder, and his drawings have the air of being made by a man who understands carriages. The engravings are mostly by the half-tone process, and are the finest extant, giving a catalogue a rich appearance and presenting to intending buyers a correct picture of the vehicle represented.

THE HUB and HARNESS, New York City, occupying a prominent position, and were represented by Messrs. W. H. Taylor, E. R. Shaw and G. D. Lounsbury.

THE IMPLEMENT TRADE JOURNAL, Kansas City, Mo.

IMPLEMENT AGE, Philadelphia, Pa.

REPUBLICAN PUBLISHING Co., Hamilton, O.

ST. LOUIS IMPLEMENT & VEHICLE NEWS, St. Louis, Mo.

HARNESS WORLD, Cincinnati, O.

VARNISH, Philadelphia, Pa.

F. M. WATKINS, Cincinnati, O., gas engines.

Mr. Murray, and is now prepared to do carriage wood work of every description and also blacksmithing in all its branches.

NEW BRITAIN—Alfred A. Benoit, of Webster, Mass., and Arthur E. Benoit, of Worcester, Mass., have purchased a piece of property on Elm street. The property includes the old factory near the New Britain Hardware works. It is the intention of the purchasers to open a carriage manufactory there.

NEW HAVEN—There has been recorded in the town clerk's office a sale of the carriage factory at the corner of Chapel street and Hamilton street. A. T. Demarest sells the property to the A. T. Demarest Company. It is believed the price paid was about \$35,000. The New Haven Savings Bank has a mortgage on the property of \$17,000. The land fronts 225 feet on Chapel street and 267 feet on Hamilton street.

GEORGIA.

ATLANTA—John S. Clarke, John R. Singer and C. G. Childs filed a petition in the Superior Court to-day asking to be incorporated under the name of the Clarke & Singer Buggy Company. The capital stock will be \$10,000, divided into shares of \$100 each. The petitioners, however, ask the privilege of increasing the capital stock to \$100,000. Nine thousand dollars of the capital stock, it is stated, has already been paid in.

INDIANA.

BLUFFTON—S. C. Reid, a Hartford City hub manufacturer, will sell his property there and move to Bluffton. He owns a factory here.

GREENCASTLE—The Hurst Buggy Company, of Roachdale, have made an assignment, naming W. B. Welch assignee. The liabilities are given at \$3,600 and the assets \$1,200. The firm is said to be distinct from the Hurst Buggy Company of this city and of Danville.

MILTON—Small & Stanley, dealers in farm implements and buggies, have taken advantage of the bankruptcy law. Their liabilities are \$3,800.

MUNCIE—The J. H. Smith & Co. plant is commonly called the Muncie Bending Works, and is situated immediately west of the Big Four depot. The product is all kinds of bent wood work, principally shafts and bows for buggies, carriages, etc. The manufactured articles go over the whole world. John H. Smith is president; William A. Hartley, vice-president; William M. Hamilton, secretary and treasurer, and George Hartley, superintendent. There are about 125 men employed by the concern, and the pay roll amounts to about \$30,000 annually.

NOBLESVILLE—A fire in the lumber wareroom of W. Hare & Sons, carriage manufacturers, on Oct. 29, caused a loss of \$4,000.

PORTLAND—The petition of Thomas R. Turner, of Portland, to be declared bankrupt was heard by Referee John W. Ryan, on October 31st. Turner was formerly at the head of the Turner Buggy Company, of Portland, and the concern went under in 1898. The case has been pending settlement since that date. An investigation of affairs in the referee's court revealed that Turner's liabilities are \$7,640.95, and his assets nothing. The creditors will consequently receive nothing whatever.

RICHMOND—The Richmond Vehicle Factory is a new concern just established. It is a branch of the Westcott Carriage Company. Many of the workmen come from Anderson and Union City. Operations will shortly begin.

UNION CITY—The Carriage, Canopy and Gear Wood Company. Capital stock, \$10,000. Directors, George R. Hill, Jefferson I. Gilkey and Edgar H. Michals.

IOWA.

DAVENPORT—The incorporation of the Davenport Spring Vehicle Company seems to promise another handsome addition to the list of Davenport industries. The company has been quietly worked up here, and has made its preparations for going into business without asking for help or favors of bonuses of any kind. The new company expects to engage in the making of spring vehicles to an extent that after a few months will make its factory the center of a good deal of activity. All parts of the buggies that it turns out are to be made right here. The officers of the company are Isaac Klein, president and treasurer, and Finis Cartwright, are the directors. While the company is capitalized at \$50,000, it will have the financial backing necessary to swing its business when it outgrows the limit stated in the articles of incorporation.

DUBUQUE—John Ernsdorff Sons Co., wholesalers of heavy hardware and blacksmiths' supplies, have decided to branch out into the manufacturing of carriages and buggies, and they are now looking about for a suitable site on which to erect a five-story brick building. It is their intention to manufacture nothing but medium and high grade buggies, and they will make a special effort to make their goods equal, if not surpass, those of other western manufacturers. The building that they intend to erect will be 100x80 feet, and will be five stories in height. The most modern machinery will be used, thus giving the assurance that nothing but first-class work will be turned out. About a hundred men will be employed when the factory is going full blast.

KENTUCKY.

HENDERSON—The contract for the building of the Delker Bros.' new carriage factory has been signed. The plans show a three-story brick building, one hundred by fifty-four feet. The work of excavating has been already begun and will be pushed to completion with all possible dispatch. The new factory will be, on

Trade News.

BY UNCLE SAM.

ALABAMA.

GADSDEN—Work on the Mecklan Wagon Factory is progressing rapidly. The main building is almost complete. The machinery is expected to arrive this week. When completed this will be one of the largest wagon factories in the State. C. L. Beare, president, stated that they hoped to be ready to begin operations by December 1. The plant complete will cost \$125,000.

WAVERLY—It is said that a new wagon factory will soon be erected here. Messrs. J. J. Pinnell and Earnest Shealy have formed a partnership for that purpose. The date for commencing operations or the capacity of the plant has not yet been announced.

COLORADO.

PUEBLO—By the first of March next the steel wagon factory that is to be built just to the south of the Bessemer Junction will be completed. Besides making steel wagons, the Steel Wheel & Wagon Co. will manufacture mining cars, mining barrows, scrapers, etc. W. H. Schofield is president and general manager of the company, Geo. W. Bowen is vice-president, S. I. Heyn is secretary, and H. T. Wright is treasurer. The principal office of the company is in this city.

CONNECTICUT.

ANDOVER—F. W. Bruce has leased the shop recently occupied by

its completion, supplied with the latest machinery for building vehicles. Its capacity is estimated at fifteen hundred wheeled vehicles of one kind and another per annum. John Delker has given his life study to the business of manufacturing, and is as well equipped for carrying on such a manufactory as any young man in the country. The new factory will be located between First and Second streets, on Green.

MARYSVILLE—Fred Dietrich, of Aberdeen, until recently conducted a carriage factory in this city. Last spring he made an assignment to Harry L. Walsh, showing liabilities largely in excess of assets. Mr. Walsh was proceeding with the settlement of affairs, and had gone so far as to advertise the assigned property for sale, when some of the creditors enjoined him and filed a petition in the Federal Court asking that Dietrich be declared a bankrupt. The petition has been granted.

MAINE.

CORNISH—Bradley Allen, who lately purchased the Merrill shops, has converted the smaller into a cozy dwelling house, and will carry on his business of carriage and sleigh manufacturing in the other.

LINCOLN—L. E. Gordon has a two-story carriage and paint shop up and about finished on the outside. Mr. Gordon does quite a business in carriages and sleighs.

MASSACHUSETTS.

GREAT BARRINGTON—John Stephenson, carriage dealer, has filed a bankruptcy petition. His debts amount to \$5,636.32. Assets, \$2,918.50.

A. A. Turner has opened a carriage-painting shop in the basement of Central block.

TAPLEYVILLE—George W. Battye has bought James Pike's interest in the well-known and long-established firm of Pike & Whipple, wagon manufacturers.

NORTHERN—E. O. McCarthy, East Jaffrey, N. H., has purchased a corner lot and will build a carriage repository and dwelling house.

MICHIGAN.

DETROIT—In the case of the Anderson Carriage Co. against William A. Pungs, the jury yesterday returned a verdict for the plaintiff for \$17,970.24. The amount sued for was \$25,000. The plaintiff claimed that the Anderson Carriage Co. was formed after the withdrawal of Pungs from the Pungs-Anderson Manufacturing Co., in May, 1899. Pungs had been treasurer of the latter company, and general manager, and it is alleged that under his management the trade of the company fell away, and when two of the officers went to him in January, 1898, to announce that as a consequence they were going to withdraw from the concern, Pungs is alleged to have said that if they did not withdraw he would turn over to the company certain patents which he held on the making of brake beams that would soon put the company back where it belonged. They accepted the proposal, they say, but Pungs, instead of turning over the patents, sold them to the American Brake Beam Co. and then withdrew from the Pungs-Anderson Manufacturing Co. In consequence of his selling these patents, the plaintiffs say that they were obliged to go out of business, and for this they wanted \$25,000.

SAGINAW—A company is being organized here by George S. Benjamin, of this city, and Charles Debbins, of Bedford, Ind., for the purpose of manufacturing high-grade racing wagons, and the work of erecting the factory, which will be located at South Michigan avenue and Wheeler street, has commenced.

MISSOURI.

BLOOMINGTON—Martens-Leary Company, Bloomington; to deal in vehicles and implements; capital stock, \$25,000. Incorporators: Christian C. Martens, Daniel D. Leary and Michael A. Leary.

CARROLLTON—Brocksmith Wagon Company, of Carrollton; capital, \$15,000. Incorporators: J. T. Mitchell, W. H. Marshall, R. P. Queen and others.

ST. LOUIS—The Joseph W. Moon Buggy Company, of St. Louis, filed a statement of increase of capital stock from \$50,000 to \$150,000.

The Timken Carriage plant at Second and Branch streets, in North St. Louis, has been purchased by the Cook Bros., formerly a large carriage jobbing firm at No. 1219 North Broadway, for about \$50,000. Cook Bros. have given up their jobbing business and will devote themselves entirely to the manufacture of light pleasure vehicles. They will continue to produce the Timken designs, but will add several of their own. The officers are, J. J. Cook, president; O. H. Cook, secretary, and George M. Hoffman, superintendent. The Timken firm, of which Henry Timken is president, has retired from carriage building, but will continue to manufacture the patent Timken roller-bearing axle. The concern goes to Canton, Ohio, by which step St. Louis loses a \$100,000 plant.

KANSAS CITY—A receiver has been appointed for the Wiswall Manufacturing Company by Judge Slover this afternoon. The company owns a factory at First street and Lydia avenue and manufactures buggy bodies and vehicle trimmings. W. V. Clarke was named a receiver and furnished a bond of \$10,000.

ST. LOUIS—The partnership heretofore existing between Henry Buchanan and Joseph Nistler, under the firm name and style of Buchanan & Nistler, has been dissolved by mutual consent. Henry Buchanan will carry on the business of the general car-

riage and wagon manufactory at the old stand, 309 South Twelfth street, and is authorized to collect all outstanding accounts.

The William Young Carriage Company is erecting a two-story factory at 4526 Delmar avenue to cost \$3,000. Charles J. Stewart & Son are the contractors.

At a stockholders' meeting on November 7 the Joseph W. Moon Buggy Company decided to increase the capital stock of the concern from \$50,000 to \$150,000, and to add one director, making five in all. The office of the company is at the southwest corner of Main and Douglass streets. Mr. Moon said that it was the intention of the company to build an addition to the present factory.

NEW JERSEY.

EAST RUTHERFORD—The East Rutherford Wagon works, established in 1868, has recently been reorganized. The owners of the works are Benn & Kern. They have enlarged and improved the shops, and can now compete with any work of its kind in the country. The new firm is rushed with orders and everything points to prosperity.

PHILLIPSBURG—Robbins Brothers, carriage builders, have gone into bankruptcy. Liabilities about \$20,000. Bad sales and forgery by an agent are given as the cause of the trouble.

NEW YORK.

ALBANY—The Economy Wagon Company have filed their certificate of incorporation. The capital is \$4,000 and the principal place of business will be in this city. The directors for the first year are E. P. Burnham, S. P. Corliss and G. W. Harper, all of this city. The first two own twenty each and the last named thirty shares of stock. The other stockholders, all of whom are Albanians, and their holdings of stock, are as follows: Theodore D. Robinson, twenty shares; Martin Becker, twenty; Edmund W. Huyck, twenty; Fred C. Vedder, ten, and C. F. Williams, ten.

BATAVIA—The Batavia Industrial Company has closed out its stock of carriages, wagons and implements and will discontinue that branch of its business. It will hereafter devote its entire time to the manufacture of its mineral wool pipe covering.

BINGHAMTON—Michael McMahon, of Binghamton, manager of the McMahon Wagon Company of that city, has filed a petition in bankruptcy. The unsecured liabilities are \$9,547.86; secured claims, \$8,531.32; assets, \$550.

CANASTOTA—The Watson Wagon Co. has been raising its storehouse 24 feet. The building will now be 30 x 100 feet and three stories high.

CUBA—F. C. Moore has removed his wagon shop from C. Little's to George Dabolt's, opposite Loveridge's livery.

GROTON—Work on Groton's new carriage shop is progressing rapidly, the walls being now completed nearly to the top of the first story.

HERMON—At a meeting of the trustees of the Kelley Wagon Co., held October 29, it was deemed advisable by them that the said corporation be dissolved, and a meeting of the stockholders was called for November 29, to take action on the same. The company has been organized about ten years and the stockholders have received more experience than dividends for the money invested.

NEW YORK—The Juillard estate definitely concluded arrangements to-day with the Studebaker Manufacturing Co., to erect for the latter a nine-story store and loft building on 48th street, extending from Broadway to Seventh avenue, on a twenty-one-year lease. The site contains about four lots, and the rental for the site and building will be \$38,500 a year. The cost of the building, apart from the land, is estimated at \$350,000.

OWEGO—The annual election of directors of the Champion Wagon Works was held on November 4 with the following result: Frank M. Baker, W. C. Renswick, L. G. Fitzgerald, Hon. J. C. Platt, Jonas Shays, C. Z. Lovejoy, Theodore D. Gere. The election of officers was postponed.

PAVILION—William Wood is building a second story to his carriage making department.

PORTVILLE—H. F. Keyes' new blacksmith shop and carriage factory will assist greatly in improving the business appearance of this town. The building is of two stories and has a floor space of 3,200 feet. On the ground floor is the smithy and the carriage shops and upstairs store rooms and the paint shop. Two new improved steel forges will facilitate the work of the blacksmithing department.

SCHENECTADY—Charles H. Betts, who has been engaged in the wagon making business at 211 South Centre street, has made an assignment for the benefit of his creditors. L. M. King is the assignee.

UTICA—Michael McMahon, of this city, manager of the McMahon Wagon Company, has filed a petition in bankruptcy. Unsecured liabilities are \$9,547.86, secured claims \$8,531.32; assets \$550.

NORTH CAROLINA.

HICKORY—Mr. W. B. Yoder will open a repository for the sale of wagons, buggies, machinery, etc.

LA GRANGE—John H. Rouse, manufacturer of buggies, etc., has assigned. Liabilities, \$8,000; assets, \$4,000; Mr. D. W. Wood assignee.

OHIO.

CINCINNATI—The Haydock Carriage Company's building and property at Twelfth and Plum streets was sold at auction Monday afternoon, the Union Savings Bank and Trust Company being

trustee and special master commissioner. The property was sold at two-thirds the appraisal of \$66,333. T. T. Haydock was the only bidder, securing the entire property for \$44,222.

MANSFIELD—The Mansfield Vehicle Company has been incorporated with \$10,000 capital stock by J. Clarke Custer, Joseph N. Custer, Charles O. Hubbs, Volney S. Beardsley and Samuel C. Teeter.

PENNSYLVANIA.

HARRISBURG—The Hess Carriage Company was awarded by the government the contract to build twelve wagons to be used in the free delivery mail service in Franklin county. The contract price is \$900. Each wagon will be the size of a buggy, with sliding doors and equipped with desk and shelving inside.

HAZLETON—The Hazleton Carriage Co., of which George Shaffer is the leading spirit, will erect a good substantial building and modern wagon making machinery will be installed. The new industry will start out with a number of expert workmen, the number to be increased as the business will warrant. There is but little doubt that the industry will prove a most substantial one to Hazleton, as well as being a paying venture for Mr. Shaffer.

WOMELSDORF—Haak & Bro., carriage manufacturers, are laying a new foundation for their factory, on the rear of their lot on West High street. The present buildings on the front of the lots will be removed to the new site.

YORK—The suits instituted among the Hoover Wagon Company directors and stockholders, and which have been pending for a year or two, have been amicably settled and adjusted. The original directors were D. F. Lafean, C. C. Frick, C. H. Dempwolf, G. W. Bacon and I. K. Ziegler. After a time the first three resigned and C. H. Stillman, W. H. Miller and John Julius were substituted. Under the new arrangement and adjustment the last three directors resigned, and were supplanted by the first three of the old board, and the board increased to seven by adding H. C. Niles and R. H. Shindel. By the compromise the stockholders, C. H. Stallman, W. H. Miller, John Julius, C. H. Baylor, L. A. Marshall and George W. Williams sold to the old board of directors their stock at par, and the supplanted directors were allowed a reasonable compensation for their services.

The new annex to the York Wagon Gear Works, 38 x 40 feet, is completed. A new engine house has also been erected and a 100-horse power engine put in and a 130-horse power boiler, with an iron stack sixty feet high and twenty-four inches in diameter.

SOUTH CAROLINA.

ROCK HILL—The Eagle Manufacturing Company proposes to make wagons, coffins, cabinet works, etc. Capital stock, \$5,000.

Wants.

Help and situation wanted advertisements, one cent a word; all other advertisements in this department, 5 cents a word. Initials and figures count as words. Minimum price, 30 cents for each advertisement.

SITUATIONS WANTED.

Wanted—Situation by trimmer and painter. Address Leo Herman, 2712 Mill street, St. Louis, Mo.

Wanted—Situation as salesman, selling carriages or carriage goods. Fifteen years' factory experience. Best of references. W. O. Wesley, Freeport, Ill.

Wanted—A situation as superintendent by a thoroughly posted and up-to-date man; capable of taking charge of a large carriage factory; best references. W. C. M., 746 W. Sixth street, Cincinnati, Ohio.

Salesman, now and for many years thoroughly acquainted with the carriage hardware, harness and livery trade throughout New York, Pennsylvania, New Jersey and the East, wants position to travel. Opportunity with a manufacturer of carriages and buggies preferred. Address "F. E. B.," Box A87, care THE HUB.

Mr. D. E. Allen, of Bird's Eye, Ind., who was formerly prominently identified with the carriage wheel interests of the country and more recently engaged in the manufacture of wheel material has sold his business, on account of the scarcity of raw material in that section, and now seeks a new opening in the same or a new line of business. Any one needing the services of one of Mr. Allen's ability and large business experience would do well to communicate with him at Bird's Eye.

A good sober, reliable carriage painter wishes a steady situation. Is not particular to what part of the country he goes. Is a man who has had twenty-five years' experience in the paint shop. Is a good finisher and good striper, used to all kinds of light and heavy work. Does not want any but permanent situation. Address Silas S. Marshall, 428 Main street, Poughkeepsie, N. Y.

Wanted—A situation as superintendent or assistant by first-class all around carriage man and practical draftsman. Address Box "A82," care THE HUB.

A first class trimmer wishes employment. Have been head trimmer in a large factory for the past fifteen years. Address "J. D.," Box "A83," care THE HUB.

Wanted—Position as foreman in a spoke factory. Years of experience in making wagon and buggy spokes. Reference given. Address "SPOKES," Box A77, care THE HUB.

A retired carriage maker, good address, steady habits, active, inventive and intelligent—can speak German—will accept position as salesman, or handy all-around man, or manager in some good moderate sized carriage factory. Best reference furnished. Would invest a little. Address "HANDY MAN," Box A80, care THE HUB.

An experienced and successful carriage salesman, who has a wide acquaintance among Eastern dealers, and who has just severed his connection with a prominent New York State manufacturer, would like to communicate with a wholesale carriage builder who wishes to extend trade in the Eastern territory. Best references. Write at once to "EXPERIENCED," Box A81, care THE HUB.

Manufacturers of carriages, wagons, harness, or the accessory lines, who are in need of salesmen, and who want to engage high class men able to sell goods, should write at once to L. H. Kronfeld, secretary of the Carriage, Harness and Accessory Traveling Salesmen's Association, Mt. Vernon, N. Y.

HELP WANTED.

Wanted—In moderate size wagon factory, a practical and experienced wagon and truck wood worker, one who can lay out work and run machines. Steady work and good wages to a good man. "J. P.," Box A90, care THE HUB.

Wanted—Painter, to take charge of shop, building light grade work. He must be a thorough mechanic, up to date, and a good finisher, striper and letterer. A man who can handle men to advantage. Young man preferred. Steady job. Address McMurray Sulky Co., Marion, O.

Wanted—A first class salesman familiar with the trade, to represent us in New York State, also Pennsylvania, on commission basis only. Correspondence solicited. Address "WHOLESALE MANUFACTURER," Box A86, care THE HUB.

Wanted—Experienced foreman for paint department of buggy factory, capacity eight to ten thousand jobs. Man thirty to forty years preferred. Must be thoroughly familiar with painting, and capable of handling men. References required. Address "R. F.," Box A88, care THE HUB.

Wanted—An experienced body finisher. Address "R. F.," Box A89, care THE HUB.

Wanted—Superintendent, must be thoroughly posted and capable of taking charge of a large carriage factory. Address with reference, "SUPERINTENDENT," Box A84, care THE HUB.

Carriage mechanics, blacksmiths, painters, trimmers, ware-room craters and wood workers wanted. Cincinnati, the carriage manufacturing center of the United States, needs more carriage workers for its increasing trade. Twenty-nine shops built 150,000 vehicles this year. Steady employment. Good wages; good schools; rents and living cheap. Address with reference, U. S. VEHICLE MANUFACTURERS' ASSOCIATION, Box 103, Station F, Cincinnati, O.

Wanted—Hustlers to secure new subscribers for THE HUB. A good chance to make money easily. Subscription price, \$2.00 a year. Liberal commission paid. Address Subscription Department, THE HUB, 24-26 Murray street, New York.

PATENTS.

PATENTS.—H. W. T. Jenner, patent attorney and mechanical expert, 607 F street, Washington, D. C. Established 1883. I make an examination free of charge, and report if a patent can be had and exactly how much it will cost. Send for circular.

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Wheel securing device, (patented), simple and effective, no pins or springs. Nuts cannot come off, use one thread for all wheels. Adds five times its cost to selling value of vehicle. Will sell outright or on royalty. Address "R. E.," Room 412, 100 William St., New York.

Solid rubber tire patent. Entirely new principle. Cannot get off the rim. Economical. Experienced tire men say it is the best they have ever seen. For particulars address "RUBBER TIRE," care of THE HUB.

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Carriage factory, fine location, good trade. Only one other shop in the city of 40,000 inhabitants. Rent reasonable. Address Irvin Tennant, Springfield, O.

BUSINESS OPPORTUNITIES.

Wanted—a reliable party to promote or manufacture the most valuable anti-friction bearing of the age, that will revolutionize the automobile and vehicle industry and do three times more than any bearing in existence to-day. There are millions in this invention that will bear the strictest investigation. Can be seen in operation at 1233 Lexington avenue, New York. Sweeney.

MATERIALS WANTED.

Wanted—A second-hand light passenger theatre coach, seating eight on inside, with outside or top seat for four. Must be in good order. State condition, weight and price. Address "OMNIBUS," Box A85, care THE HUB.

COLOR SECRETS.

No. 47.—How to Make Diamonds.

Nature makes a diamond out of loose, spongy, soft-coal soot, simple by re-arranging the atoms of it until they pack in and fit together, filling all the interstices and occupying the least possible space. The difference between a sticky flake of black soot and the queen of gems is that the atoms of one are loosely piled, like hay, while the atoms of the other are compacted, as brick in a wall.

Of course it is an unspeakable difference; and it takes Mother Nature, working on patiently, without tools, a million years or so to do it: but the entire secret is just the fine packing of the atoms. When the work of packing is but poorly done, the soot becomes plumbago, or black-lead. When the packing has been done again, and tolerably well, the black-lead becomes a milk-white stone. When the packing process is carried on to perfection, the milk-white stone becomes the solidest and clearest and hardest and finest thing in the universe. Exactly the same substance, merely by the re-arrangement of its atoms in smaller compass, appears to change its character; and does infinitely multiply its value.

The grinding of color is just the re-arrangement of its atoms in the closer packing of them. That process does change its nature, so far as its usefulness and beauty and worth are concerned. Whether the atomic packing is poorly done or tolerably done or perfectly done determines a black-lead value or a white-stone value or a diamond value. The Murphy Colors have perfect grinding.

MURPHY VARNISH CO.

Please mention "The Hub" when you write.

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PHINEAS JONES & CO
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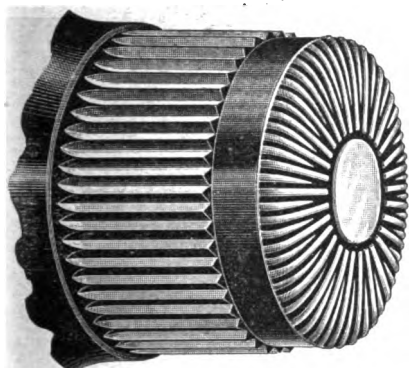
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JUST A FEW

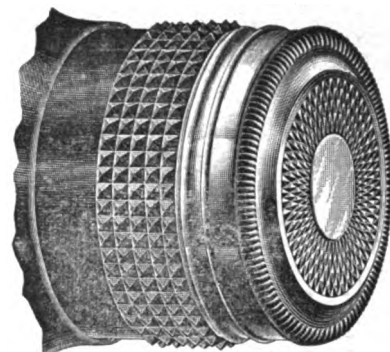
of the many things of interest
to every

Carriage Maker

shown in the new



Climax Flange with Higgin Cap



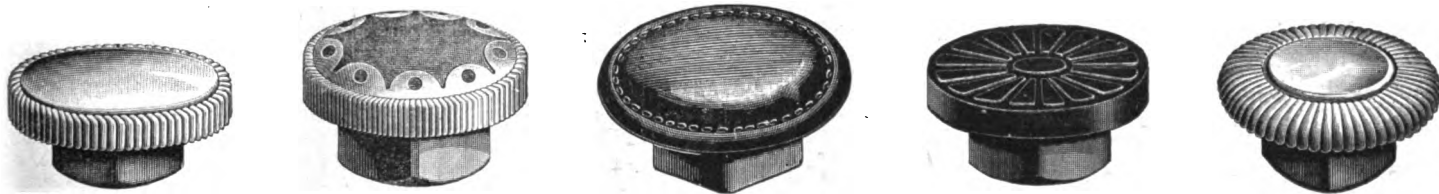
Woodburn Flange, Rim and Cap

CATALOGUE No. 7

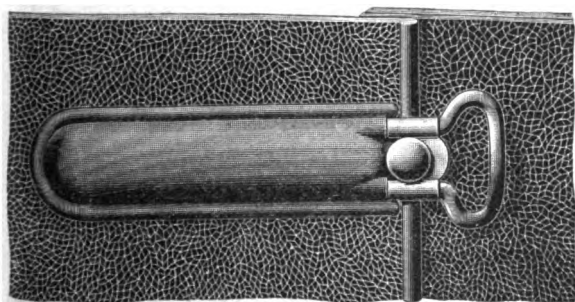
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A Bunch of Favorites.



No. 250. Adjustable Curtain Fastener—New



No. 14. New Pattern Double Leather Buckle Loop

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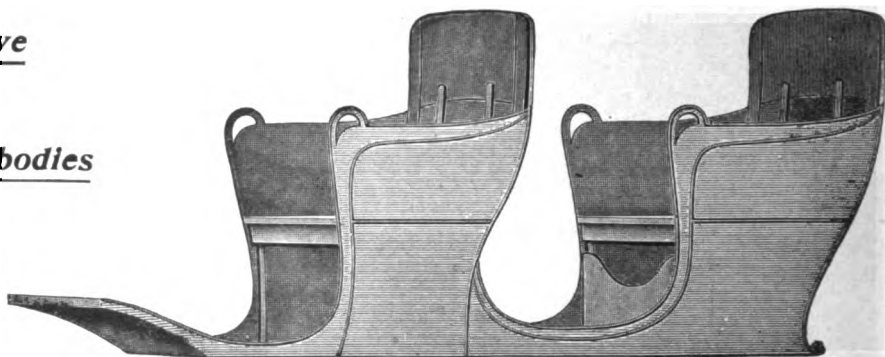
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Many new and attractive
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A choice lot of stylish bodies
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No more "open" corners.

Will not rattle.

Are very durable—in fact, practically **indestructible**.

We obtain a beautiful piano polish finish by baking the enamel on.

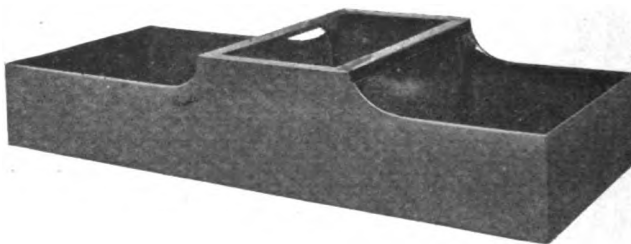
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THIS IS THE METAL AGE

And this is the FUTURE body for vehicles.



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The Eastman Metallic Body Co.,

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We have already booked orders from some of the largest manufacturers.

The finish is far more durable than on wood.

The moment you equip the Eastman Body, just that moment you enhance the value of your product.

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LIGHT AND STRONG.**

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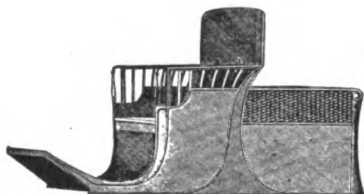
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Pioneers, Scientific Designers and Builders of
ORIGINAL STYLES HIGH GRADE BODIES, INCLUDING,
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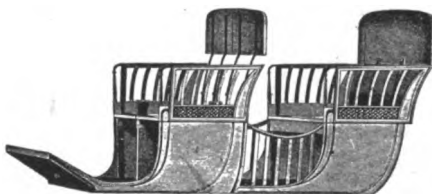
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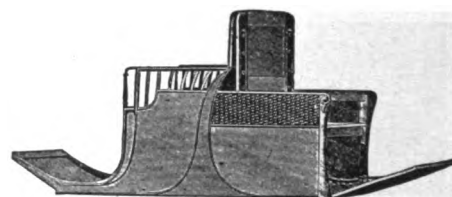
No. 731 A.

MAJESTIC

Our most ingenious and practical
**ADJUSTABLE AUTOMOBILE
BODY.** Here shown as 2 passenger
Patent applied for.



No. 432. **TRAP SURREY.** Entrance through front seat.



No. 731 B.

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Already very popular is the **ADMIRABLE
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ROLLER
CHAFE
IRONS**
ARE THE
BEST

Is a Roller Chafe
Iron desired?
Then why not
use one that comes up
to name?

THE BOSTON
THAT'S IT.

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SHUMAN.



SOVEREIGN.




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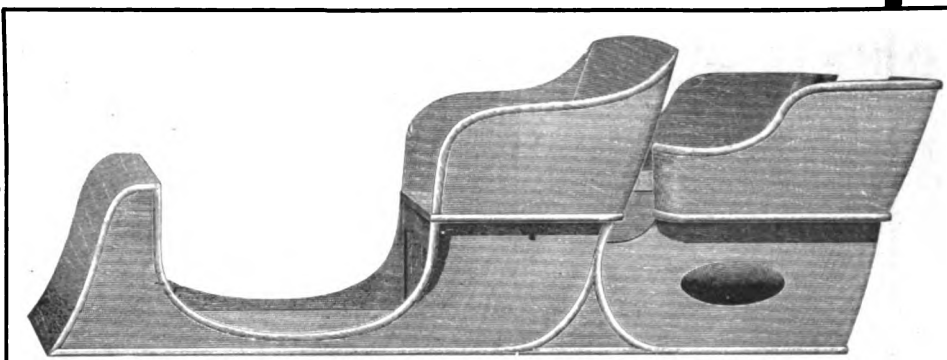
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Highest Art in Style and at Bottom Prices.

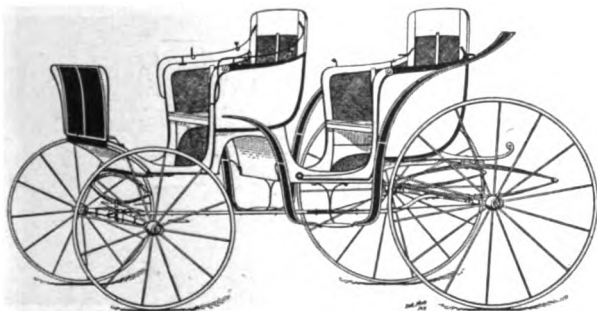
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No. 50. Tonneau Automobile Body.

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No. 1300. Four Passenger Phaeton Surrey.

HIGH QUALITY

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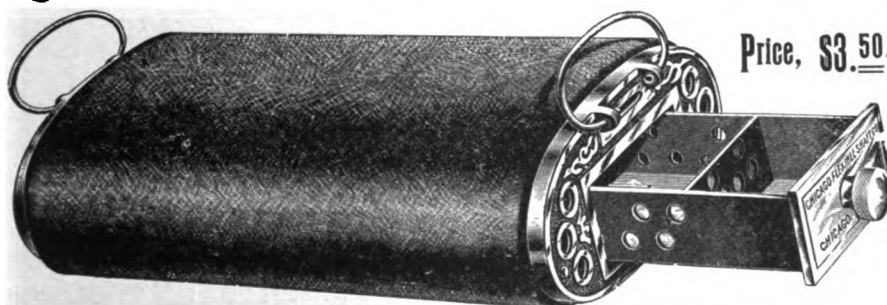
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THE CLARK CARRIAGE HEATER



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Cannot be Crushed or Bent

Covered with Best Brussels Carpet,
Ends Handsomely Nickel Plated.

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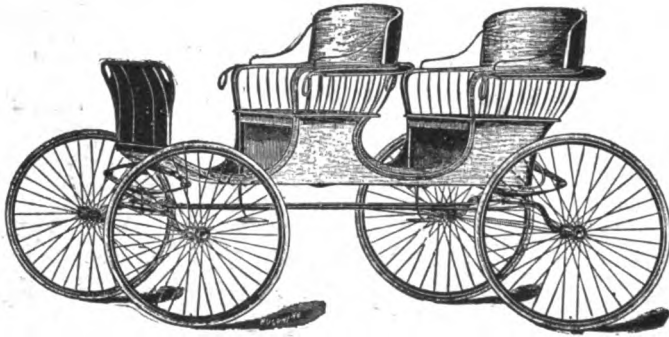
CHICAGO FLEXIBLE SHAFT CO.

124 La Salle Ave., CHICAGO, ILL.

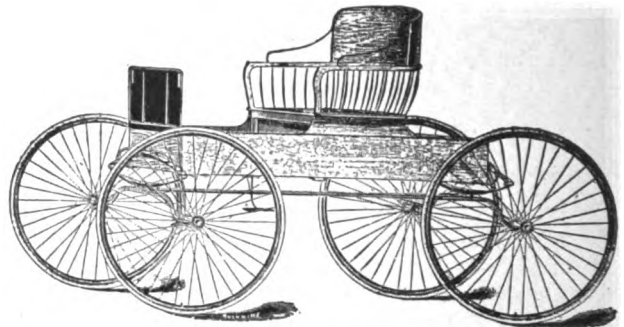
We Make Celebrated Chicago Horse Clipping Machines

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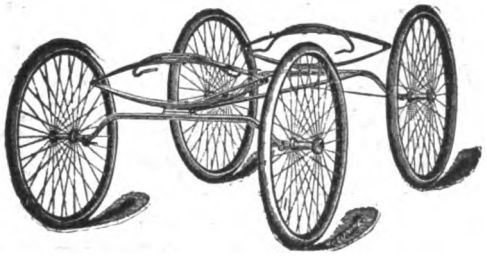
FITCH GEARS



FITCH PNEUMATIC SURREY (in-the-White).



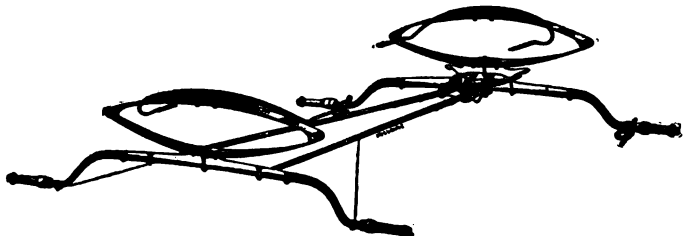
FITCH PNEUMATIC ROAD WAGON (in-the-White)



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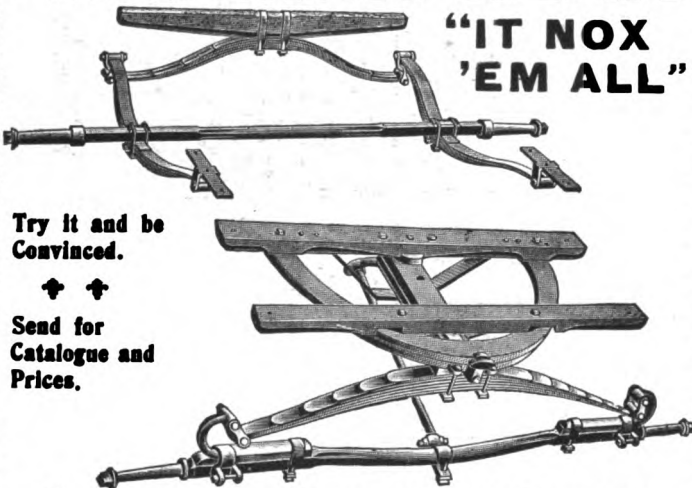
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Try it and be
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Manufactured in one grade only—

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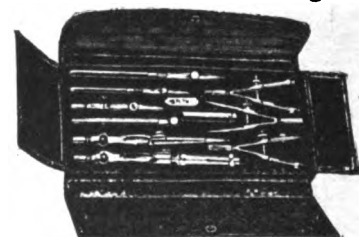
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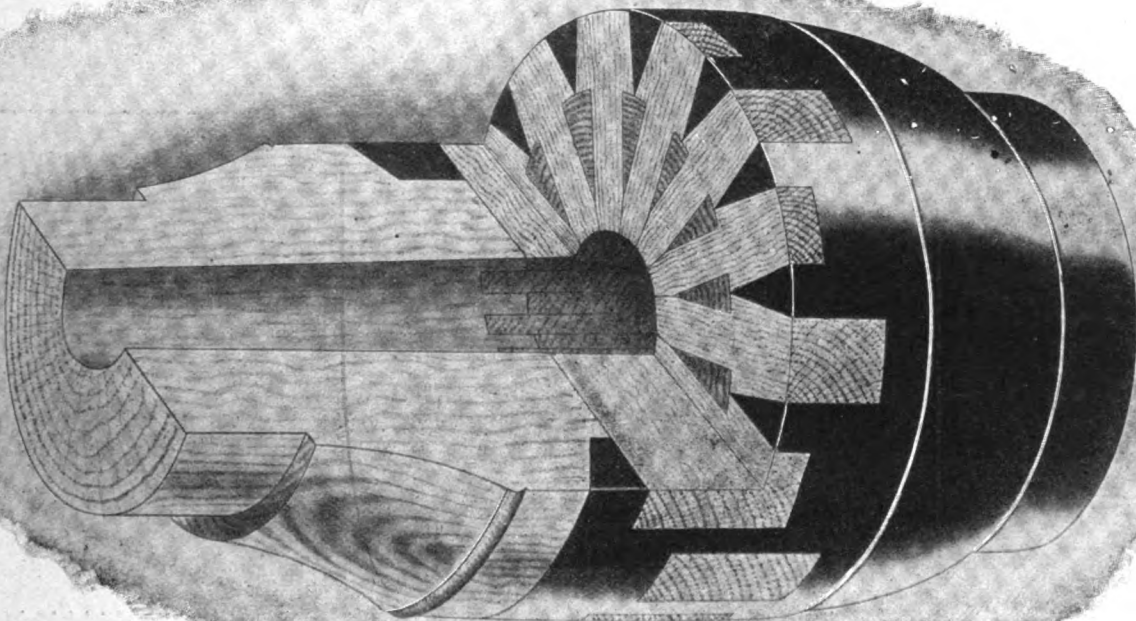
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WE HAVE
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WE ALSO AP-
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WE USE THE
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IT IS THE HANDSOMEST AND STRONGEST HUB ON THE MARKET.

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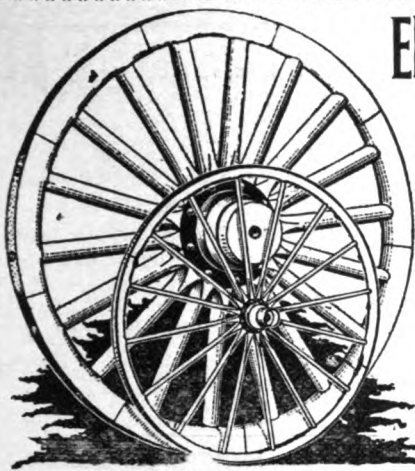
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AVOCA, N.Y. U.S.A.

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TIRE DEPARTMENT, 250 SETS PER
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Manufacturers
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Light and Heavy
WHEELS
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WHEELS
WHEEL MATERIAL AND
BENT WOOD WORK
The Wheel & Wood Bending Co.,
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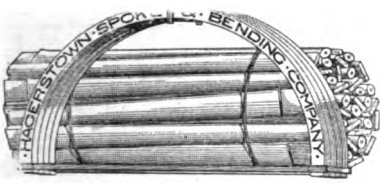
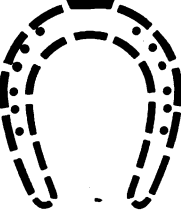
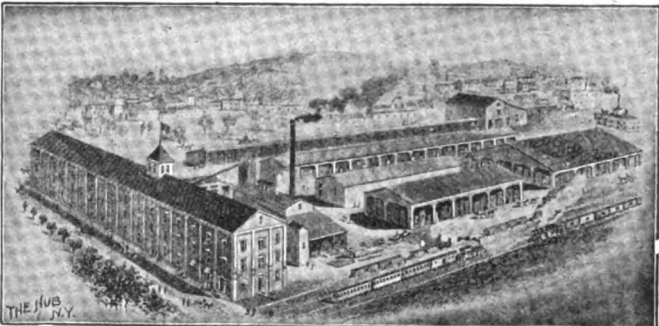
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HEAVY AND LIGHT Platform Gears
With High or Low Front Wheels
I build them from 1 1/2 to 2 1/2 in. Axle
Send for Catalogue, giving price on a full line of Buggy, Bike and Business Wagon Gears, Wheels, Carriage and Wagon Hardware of every description.
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OUR SPECIALTY IS

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"IMITATION IS SIN CEREST FLATTERY."

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All styles in both japanned and leather covered.

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Electric welded; all varieties of style and detail.

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Oval, oblong, square, round. Plain glass or bevel.

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Japanned and nickel; plain and imitation stitched; capped and solid head.

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Three styles, all good.

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Solid or screw bases. Properly threaded to fit nuts.

WAGON CURTAIN PATCHES.

Best selected leather used. Nothing else satisfactory.

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I. X. L., SNAP, and others; these two the best.

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Japanned, X. C., nickel, steel and brass; very durable; made from heavy stock.

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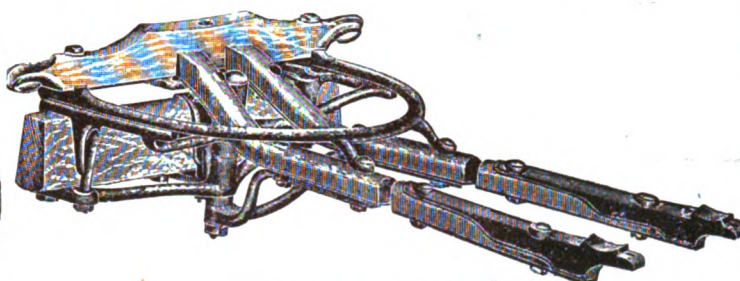
YOUNG TOUGH BUTTS

and Patent Bent Reach Rear
King Bolt Malleable Wheel....



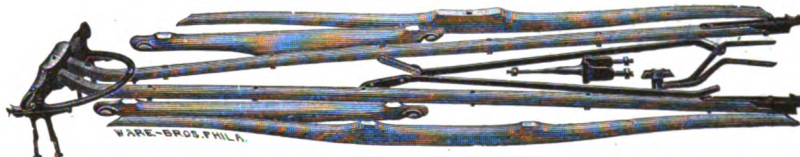
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ALL STYLES OF GEAR
WOODS MADE TO
ANY PATTERN



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Gear Woods Ironed with
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Double Reach Phaeton.
Straight Sill and Cut-Under
Surreys.

ANDREW KIMBLE,
ZANESVILLE, OHIO

Hartford Axle Company.

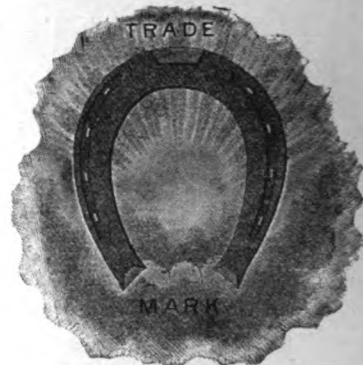
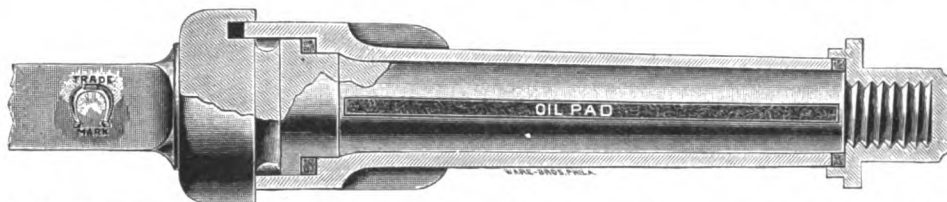
Good Axles are the result of experience, careful attention to smallest details, and the constant desire to improve. The continual upbuilding of our reputation has been guided by these principles, and a trial of our work will convince you of the excellence of our product. We make all styles, including the Brewer.

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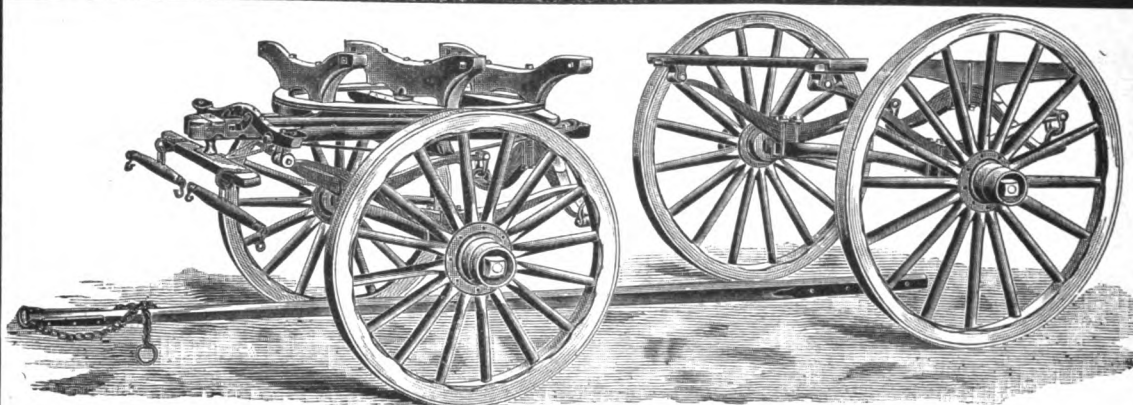
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Manufacturers of "Collinge Collar" and other styles of Axles for "Long Distance" use.

Also Manufacturers of the best "Concord Express Axles."



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Complete Gears as shown above, ready to receive body, for light and heavy work, can be furnished promptly. In ordering give full specifications, or such description as will enable us to make up specifications. Dealers in wagon materials will quote prices on our gears.

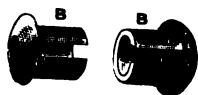
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GEARS**
THE SELLE
GEAR CO.

AKRON, O.

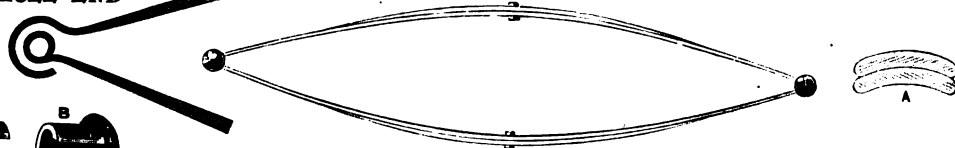
The PREMIER Bike Wagon Spring

Manufactured under Letters Patent No. 598,516

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Malleable Iron Bushings used
Between the Upper and
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AN ENTIRELY NEW PRINCIPLE

The Combination of Taper and Graduated thickness of leaves to produce an elasticity that is unexcelled. The latest in Springs. Fully Guaranteed. Made in Six sizes.

THOUSANDS IN USE

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FAMOUS

PORTER PATENT DUST PROOF AXLE."

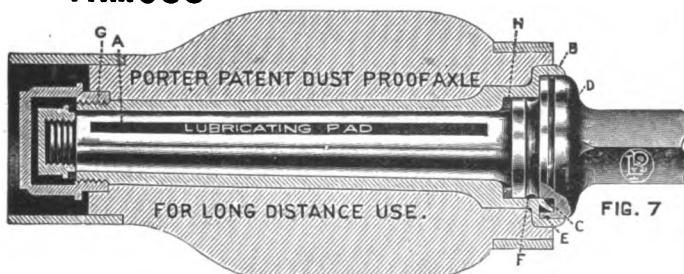
FOR LONG DISTANCE USE

The only "2,500 Mile" Standard Axle in existence.

By actual test this Axle has run 2,500 miles with one oiling, and 1,500 miles with one oiling without the Lubricating Pad.

Porter Patent Ball Bearing Axle.

This axle is fitted with the Famous Porter Patent Dust Proof Collar and V-shaped extension, making it absolutely dust and water-proof. 7,000 sets in use. Never had a ball crush. Never had a call for repairs. Write for particulars. Prices now within reach of all.

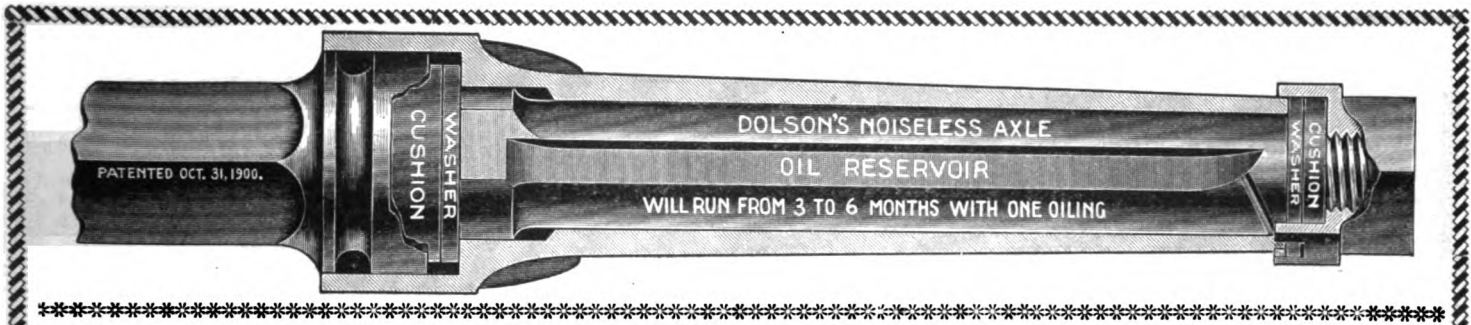


FOR LONG DISTANCE USE.

FIG. 7

Manufactured by **LEE & PORTER,** DOWAGIAC and BUCHANAN, MICHIGAN.

Please mention "The Hub" when you write.



Dolson's Noiseless Axle

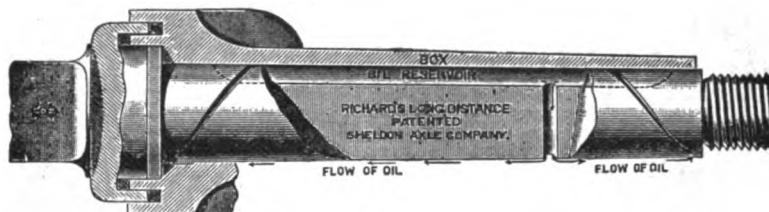
THE GREATEST IMPROVEMENT ATTAINED IN AN AXLE

IS absolutely noiseless, even though the washers have become badly worn. This Axle is constructed with a cushion in the collar and the nut. These cushions relieve the wheels from sudden jars. The fibre washers rest against the cushions and are so constructed that they do not revolve. The fibre washer which is contained in the nut when in place rests against the shoulder of the arm and the point of the box. The spiral groove at the point of the arm prevents the exit of oil. The peculiar shaped groove on the top of the Axle collects the oil from the box as the wheel revolves, and the "V" opening allows it to escape. This Axle is not complicated in its construction—simply put on the nut and screw it up. It is neat and tasty in appearance, will run from 3 to 6 months with one oiling and is the only Axle specially adapted to rubber tire vehicles, as it will not rattle or jar under any circumstances.

FOR FURTHER PARTICULARS AND PRICES, ADDRESS,

Liggett Spring and Axle Company,
PITTSBURG, PA.

**SHELDON
AXLE
CO.**



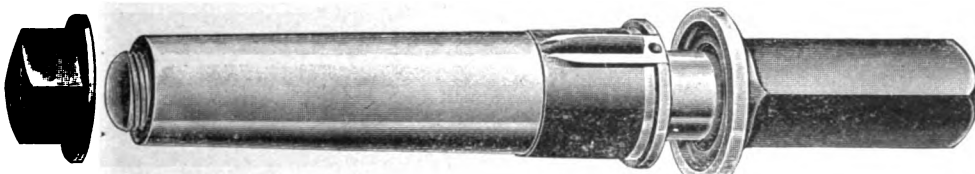
They are now prepared to furnish BIKE WAGON AXLES in any quantity, promptly, ready for welding to fifth wheels and centres. . . . The RICHARDS "LONG DISTANCE" (the only long distance axle made) still leads. There are many cheap imitations on the market, but only one real thing. . . .

SHELDON AXLE CO., Wilkes-Barre, Pa.

Not only
CLAIM to
make the
best Axles
and Springs
made in the
world, in
each of
their
grades, but
DO SO.

Collinge Collar Express Axles

WITH COMPOSITION METAL WASHERS.



Patented April 2d, 1889.

Patent applied for on improvement.

Designed for Express Wagons, Milk, Laundry, Delivery Work, Fire Chief, Ambulance, Apparatus, and all classes of work requiring extra strong, protected and durable Axles.

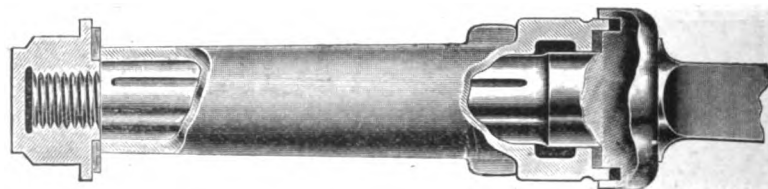
All kinds Axles
Springs
Tires, Wheels
Etc., Etc.



W. F. BLACK,
401 Electric Building,
CLEVELAND, OHIO.

Collinge Collar Axle

*An Axle
of which all
have heard,
many used
but few seen
in print.*



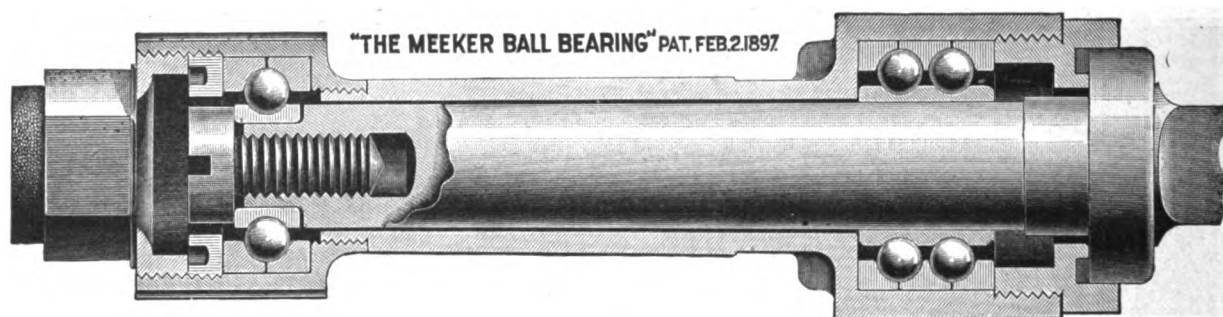
As proportioned by us we feel it is at the *head of its class*, and therefore present this cut, hoping it will induce you to give our axles a trial.

To it, when desired, we can at a small extra cost apply the Brewer Longitudinal Axle Lubricator, which is the simplest device known for *continual lubrication* and has the *added merits* of not weakening either arm or box by the removal of metal at vital points, and *not allowing* oil to leak out.

Dalzell Axle Company

SOUTH EGREMONT, MASS.

THE MEEKER BALL BEARINGS



Cheapest! Because they are the best. All sizes built in proportion to the work required of them.
Write for our Catalogue of Carriage Specialties

LOW WOOD HUB AND SARVEN WHEELS.

The Best Wheels Made, with Pneumatic Tires and Ball-Bearing Axles, for Runabout Wagons and Automobiles.



THE MEEKER MFG. CO., DAYTON, OHIO.

Please mention "The Hub" when you write.

ARMSTRONG



SINGLE
LEAF
SPRING

== FOR SWELL TURNOUTS ==

"THE ARMSTRONG"

Thousands in Use all Over the World

*Our Two-Leaf Spring for Buggies, have you tried them?
If not, write to us and let us tell you why it is to your
interest to use them. Oblige us by mentioning this
paper when you write. : : : : : : :*

J. B. ARMSTRONG MFG. CO.
FLINT, MICHIGAN

ALL KINDS OF CARRIAGE AND WAGON SPRINGS

Please mention "The Hub" when you write.

**THE OLD
RELIABLE**

THE
**J. A. & D. P.
COOPER
CO.**

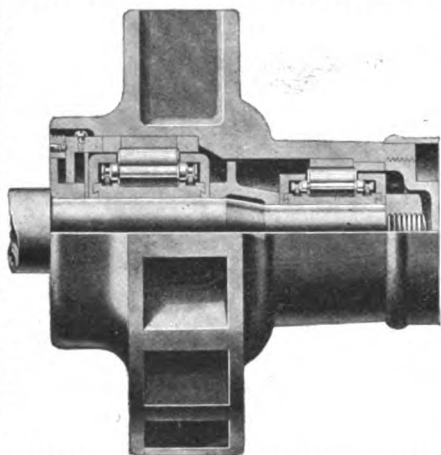
We are furnishing our Ironed Up Sets better and at lower prices than you can assemble the parts and put them up yourself.

We have greatly increased our factory facilities and are giving prompt service.

We are recognized leaders and the only practical carriage makers in the gearwood trade.

We furnish all styles of gearwoods made to order.

THE
J. A. & D. P. COOPER CO.
STRUTHERS, OHIO



American Roller Bearing Co.,

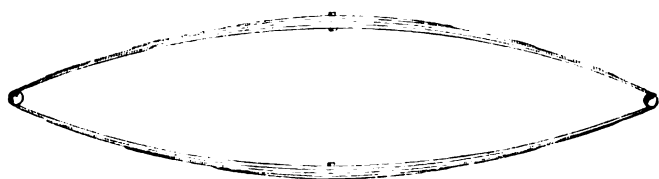
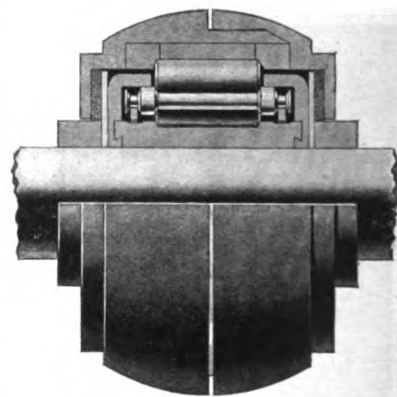
OFFICES AND FACTORY:
32 Binford Street, Boston, Mass.

Hubs, Wheels and Axles for all kinds of Carriage, Automobile, Wagon and Heavy Truck work.

Also single bearings for Shafting, Motors, Sheaves, Car Bearings, Automobile, Driving Axles, etc.

EUROPEAN BRANCH:
17 Soho Square,
LONDON, ENGLAND.

WESTERN DEPT.,
H. Franklin Peterson,
164 Lake Street,
CHICAGO, - - - ILL.

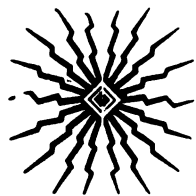


till well into 1902—prices are well maintained. To avoid repetition of your experience buy your springs of the **Tuthill Spring Co., Chicago**. This Company has not oversold its capacity—it knows how many springs it can make and reserves its capacity for its customers. It makes a good quality of springs—uses best make of steel. It makes deliveries on through trains, shipments leaving the day delivered at depot. It charges market price—no more, no less. It executes orders promptly, gives courteous treatment and fair dealing. It's a house you'll like to deal with.

TUTHILL SPRING COMPANY, 315 Clinton St., Chicago, Ill.

You must have springs—plenty of them—at the right time—when you need them. You had delays last spring—lost orders through not having stock—or, had annoyance and trouble in plenty in order to get it. The demand next year will be as large—the steel mills are filled with orders

COMPARE



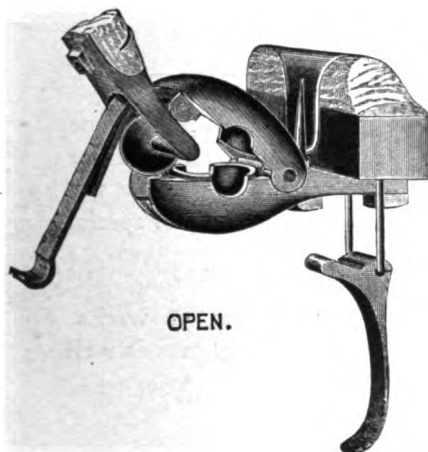
The Mulholland Shaft Coupler..

with any other Coupler on the market, and we are confident you will concede its superiority.

It is correct in principle, and has no equal for strength, workmanship and neatness in appearance.

We ask you to make the comparison and judge for yourself.

The Mulholland Coupler,



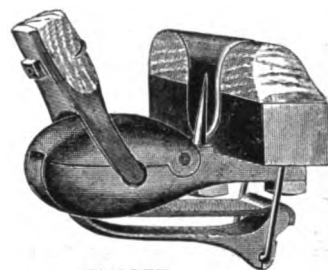
has the following features which are possessed by no other SHAFT COUPLER.

IT IS DIRT PROOF.

The Jaws Interlock.

The Leather Bushings are Permanently Cemented in the Jaws.

The Link is made of Steel Wire, the Ends being Electrically Welded.

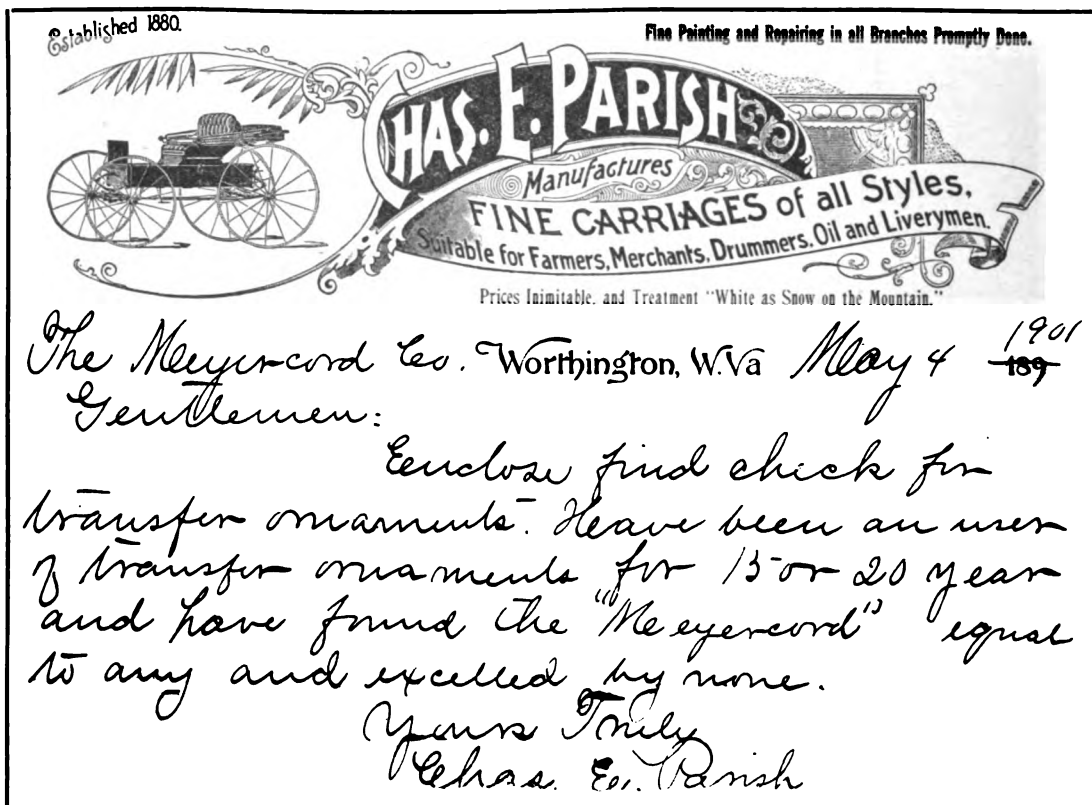


Write us, and we will tell you other reasons why you should use the Mulholland Shaft Coupler.

Mulholland Spring Co.,

DUNKIRK, N. Y.

An Unsolicited TESTIMONIAL.



THE above cut is a facsimile of one we received from one of our customers, and is only one of many which we receive daily. It testifies not only to the working qualities of our transfers, but to the up-to-date designs which we are offering as well. We claim the highest perfection for our transfers, no matter whether it is a small stock scroll or special trade mark or name plate.

We guarantee every transfer which we manufacture to be entirely satisfactory.

Our new catalogue "L" is now in press and will be ready for distribution in two weeks. This catalogue will contain many new ideas that will interest carriage and wagon painters as well as manufacturers, and a copy will be mailed free for the asking.

WINDOW SIGNS

Manufacturers who are not familiar with our permanent opalescent window signs as a medium for advertising among their agents, should write us at once for samples and particulars.

THE MEYERCORD CO.,

American Manufacturers,

Guaranteed Decalcomania Transfers.

Permanent Opalescent Window Signs.

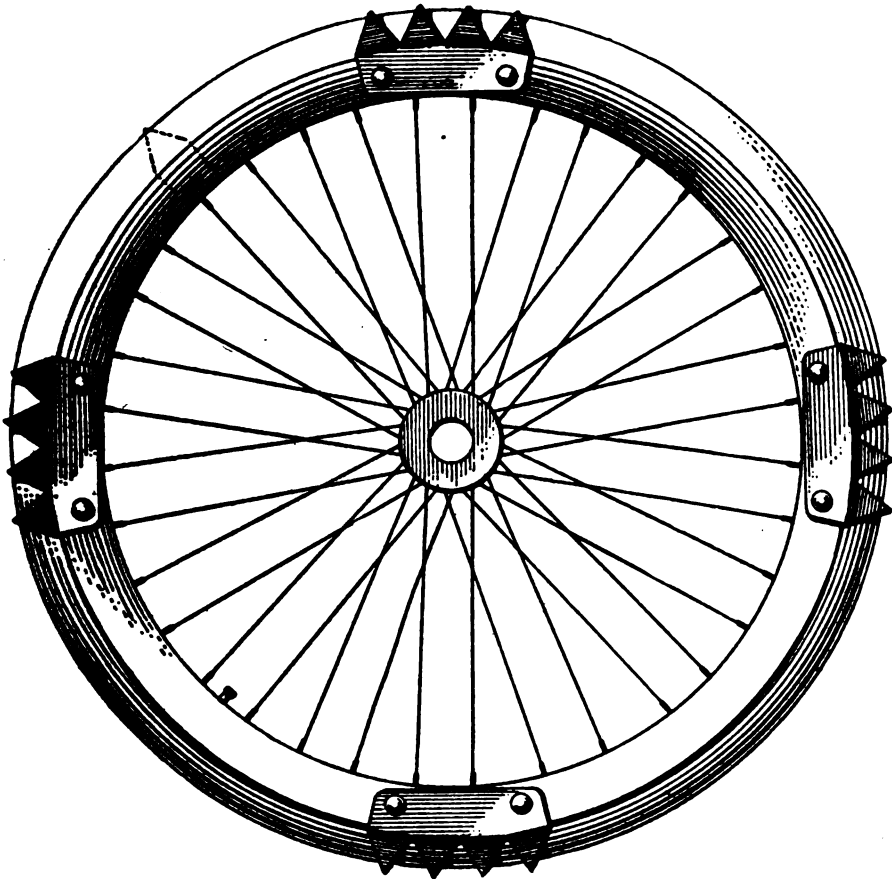
OFFICE:

Chamber of Commerce Building,
CHICAGO, ILL.



FACTORY:

CHICAGO, . . ILL.



See
Those
Teeth?

The Gripping Members on the Rim of the Wheel

Prevent Slipping on Mud, Ice or Snow

They are easily and quickly removed when summer comes.

They will save the price of a tire in preventing it from tearing loose.

They can run on ice on a 60 per cent. grade.

*They are the ONLY device that SUCCESSFULLY SOLVES
THE SLIPPING PROBLEM.*

**CAULFIELD'S
PATENT GRIP WHEEL
FOR AUTOMOBILES**

U. S. A. Patent No. 670,664

Canadian Patent No. 71,089

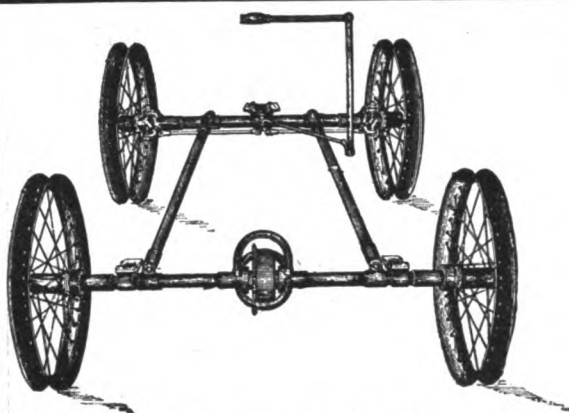
**Particulars on
Application to**

JOHN CAULFIELD,

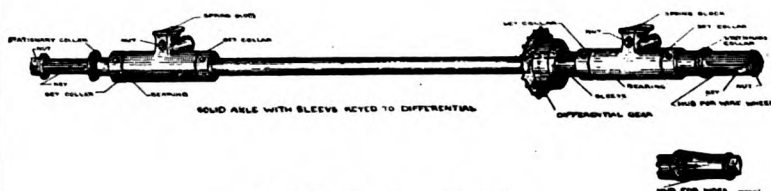
74 Nelson Street

BROOKLYN, N. Y.

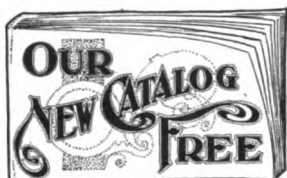
Please mention "The Hub" when you write.



One of our General Styles of Gears.

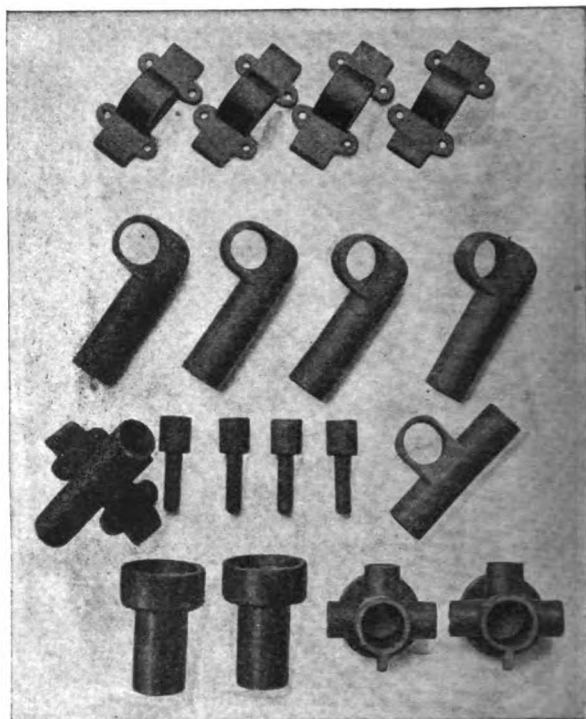


One Piece Through Axle.



WE MANUFACTURE OR SUPPLY
EVERYTHING FOR AUTOMOBILES

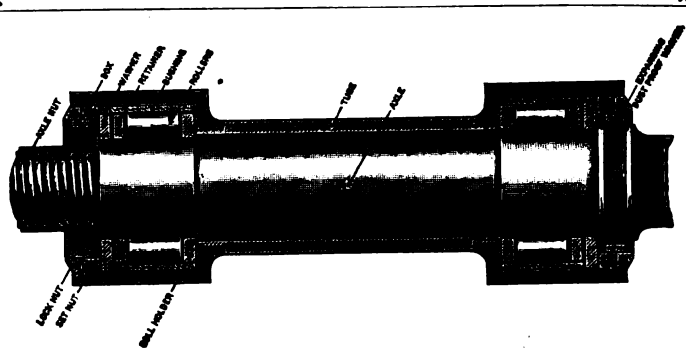
NEUSTADT-PERRY CO., St. Louis, Mo.



STRENGTH DURABILITY and SIMPLICITY

are distinctive features of the.....

MORSE ROLLER BEARING AXLE.



The Morse Roller Bearing Fifth Wheel
will interest you, too. * * * * *

Write for circulars and price list.

THE BANTAM MFG. CO.

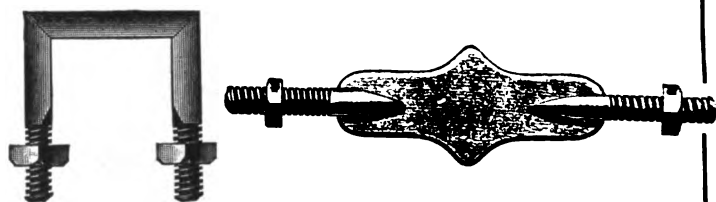
BANTAM, CONN.

NEW YORK OFFICE, 23 WARREN ST.

THE QUEEN CITY FORGING CO.,

Station C, CINCINNATI, O.

MANUFACTURERS OF
CARRIAGE HARDWARE.



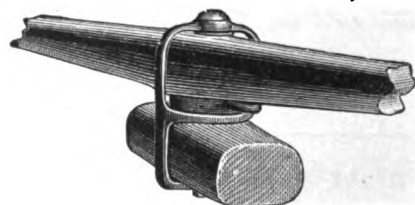
Spring Clip for Bailey Loop.

Clip for Bradley Coupling.

..... WRITE FOR PRICES.

MARLIN SINGLETREE CLIP CO.,

STATION C. CINCINNATI, O.



Most complete and serviceable clip in the market.
Gets full strength of cross bar.

Will never allow singletree to tip forward. Will
outlast best work produced. Can be applied to carriages,
carts and spring wagons. **WRITE FOR PRICES**

Please mention "The Hub" when you write.

OUR SPECIALTY

**CARRIAGE
CATALOGUES
COMPLETE**

AS IN OTHER LINES, OUR WORK
IS THE BEST ONLY. **WWW**
WRITE FOR SAMPLES.






DICKINSON-BROS
ENGRAVERS-PRINTERS
GRAND RAPIDS, MICH.



The Picturesque Route



of America
Between East and West.
New York, Buffalo, Niagara Falls,
Cleveland, Cincinnati, Chicago.

"Big Four"

Best Route to
California
Colorado
Texas
Via
St. Louis

WARREN J. LYNCH, W. P. DEPPE,
Gen'l Pass. & Tkt. Agt. Asst. Gen'l P. & T. A.
CINCINNATI, O.

Please mention "The Hub" when you write.

Bull-Dog Shaft Eyes

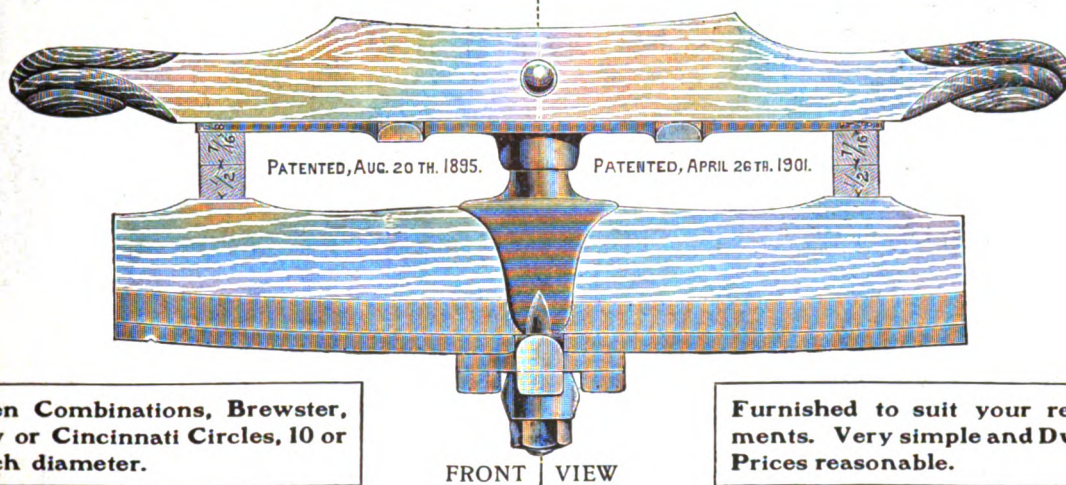
Are Bailey Shaft Eyes

There is no Shaft
Eye so good, no
Shaft Eye so ser-
viceable, and no
other Shaft Eye
so widely popu-
lar & & & & &



S. R. Bailey & Co.
Amesbury, Massa-
chusetts, U. S. A.,
manufacture them
and will send de-
tails & & & &

OUR IMPROVED 1901 REAR CLIP KING BOLT GEAR SETS



Sixteen Combinations, Brewster, Derby or Cincinnati Circles, 10 or 12-inch diameter.

Furnished to suit your requirements. Very simple and Durable. Prices reasonable.

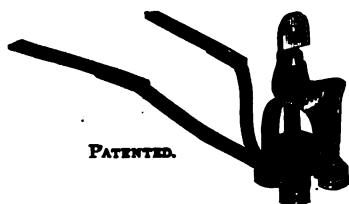
FOR BUGGIES AND SURREYS

We are getting in touch with the trade more every day. Just look at that front view appearance—just the same as a regular king bolt. Like that? Manufacturers see the point—can't help it. It appeals to them. Just notice—there is no king bolt through the head block or spring to break the paint. Right idea, likely to save a lot of money. Give us a chance to make some too. Another good idea.

INTEGRAL THREE-PRONG

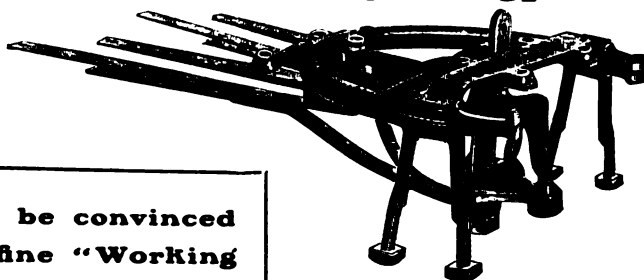
Clip King Bolt Combination.

DOUBLE BRACE.



Brewster No. 93-B.—No. 9 H. B. Plate.

INTEGRAL Three-Prong Clip King Bolt.



Just try one sample. You will be convinced we have something fine. A fine "Working Chart" for you to get your gears made to sent by mail just for the asking. Correspondence solicited.

THE D. WILCOX MANUF'G CO.

MECHANICSBURG, PA.

New Designs and Bet

OVAL HIGH ARCH, TRUE SWEEP

BIKE WAGON AXLES AND FORGINGS



GOT THE METAL WHERE IT'S NEEDED
ARCH FROM THE COLLAR NOT A BREAK
NOT A FLAT PLACE---A TRUE TRUSS

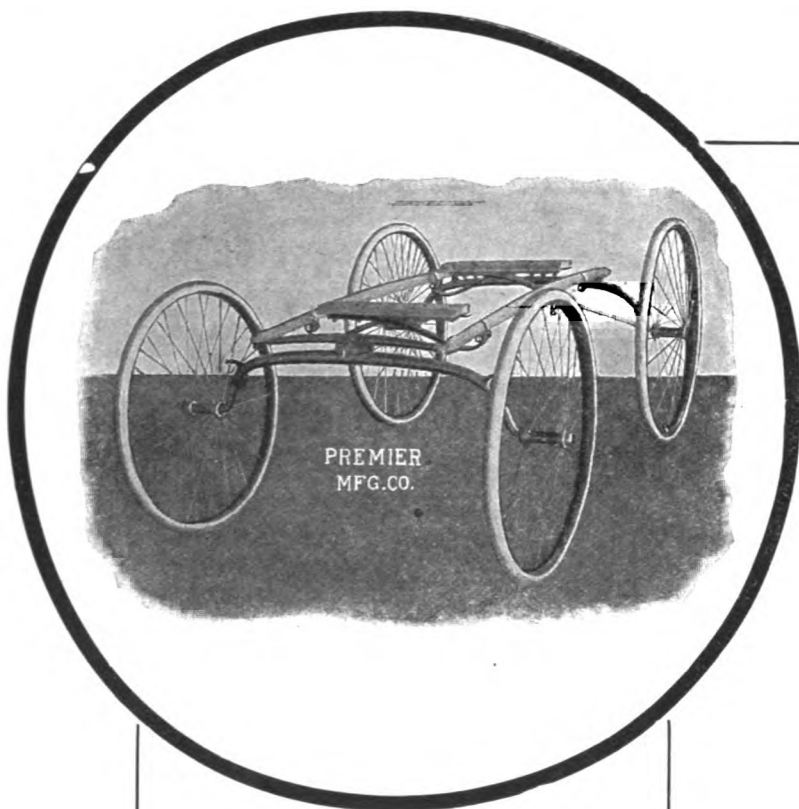


BALL-BEARING OR WIRE WHEELS
LONG DISTANCE

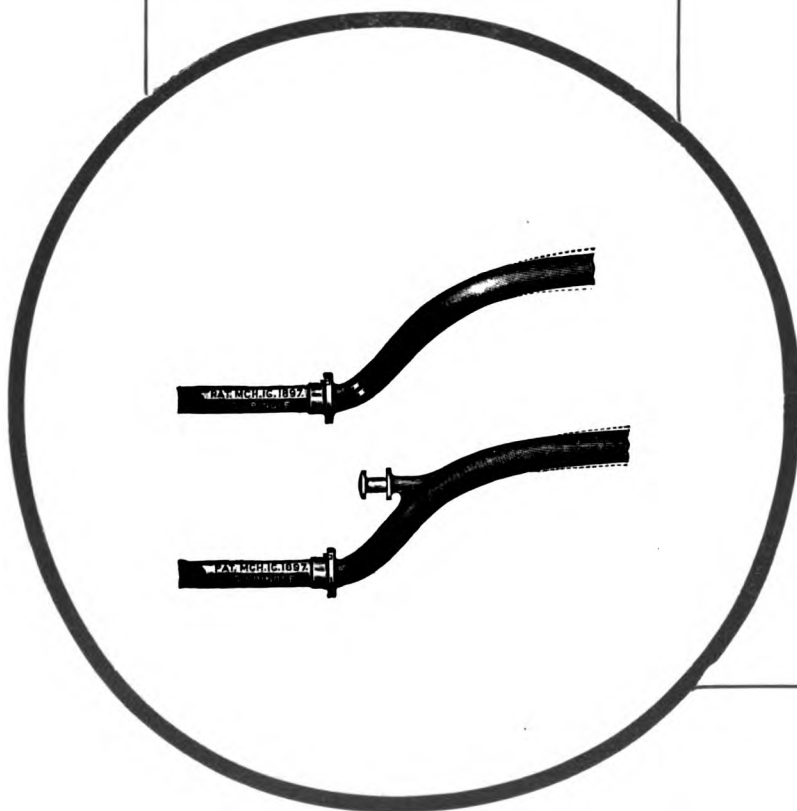
For Cushion or Pneumatic Tires.



Weston-Mott Company,



Wire Wheels
 Ball Bearing Axles
 Bushings (For Wood
 Wheels)
 Gears
 Forging Axles, Etc.



1902

PREMIER

The Greatest
 Genius in
 Mechanical Art
 has made
 the **PREMIER**
 Perfect.

A larger line
 than ever.
 Let us send
 you samples.



PREMIER MFG. CO.
 HARTFORD, CONN.

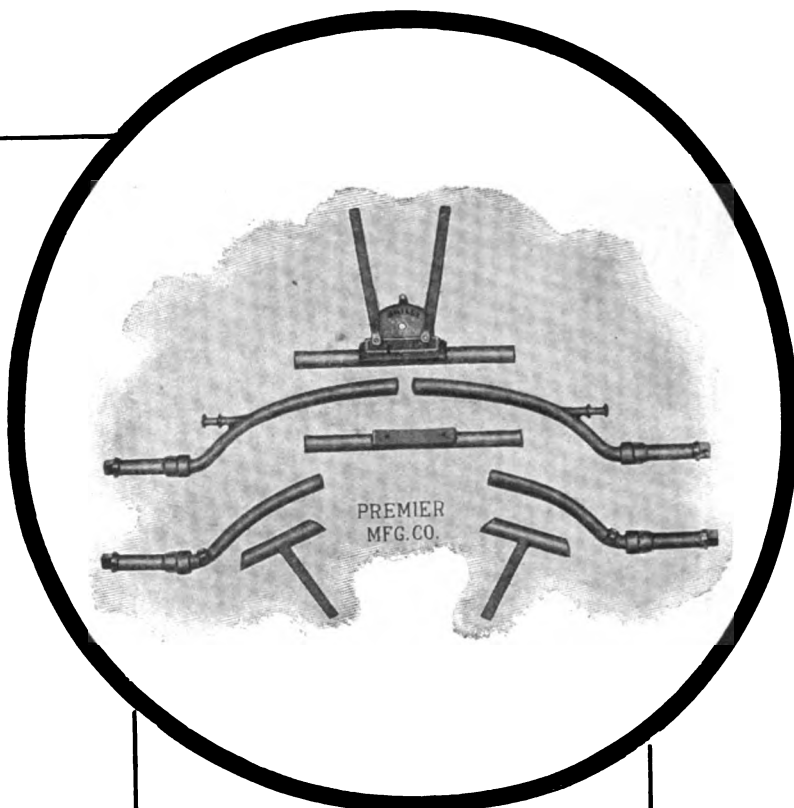
1902

PREMIER

We hold patents on axle forgings with shaft and brace lug design as shown in cuts below (also three other designs) and have licensed the parties named herewith to make and sell them. Infringers will be prosecuted.

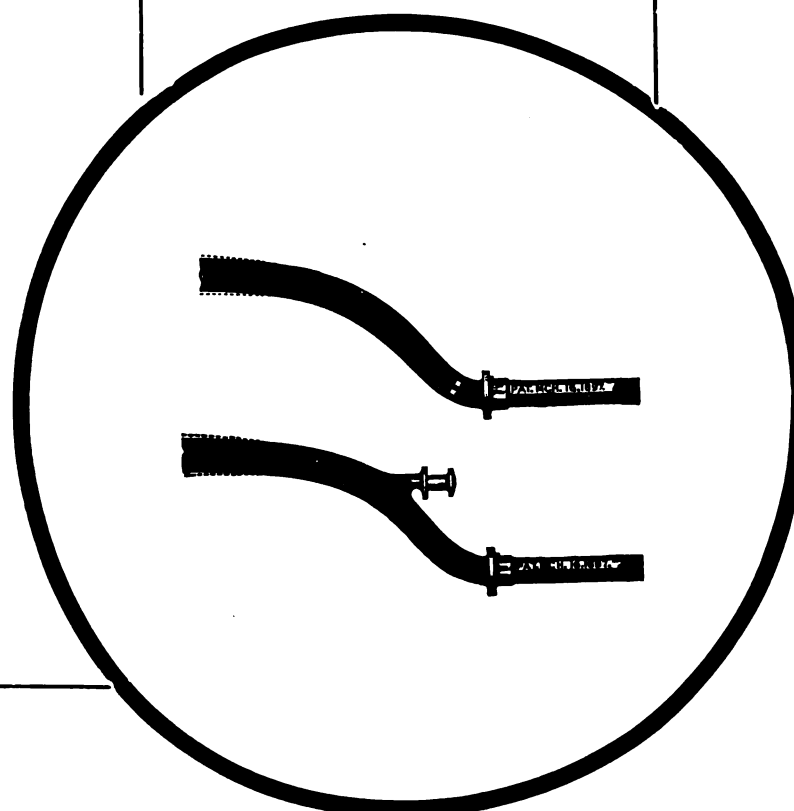


PREMIER MFG. CO.
HARTFORD, CONN.



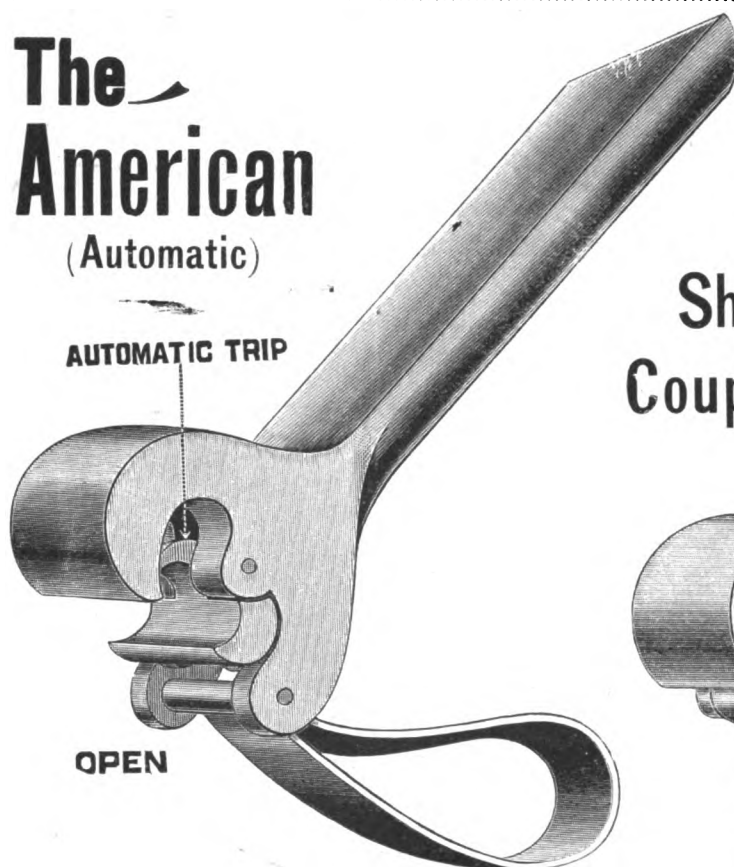
LICENSEES:

*The Sheldon Axle Co.,
Wilkesbarre, Pa.*
*The Wilcox Mfg. Co.,
Mechanicsburg, Pa.*
*The Billings & Spencer
Co., Hartford, Conn.*
*The Premier Mfg. Co.,
Hartford, Conn.*

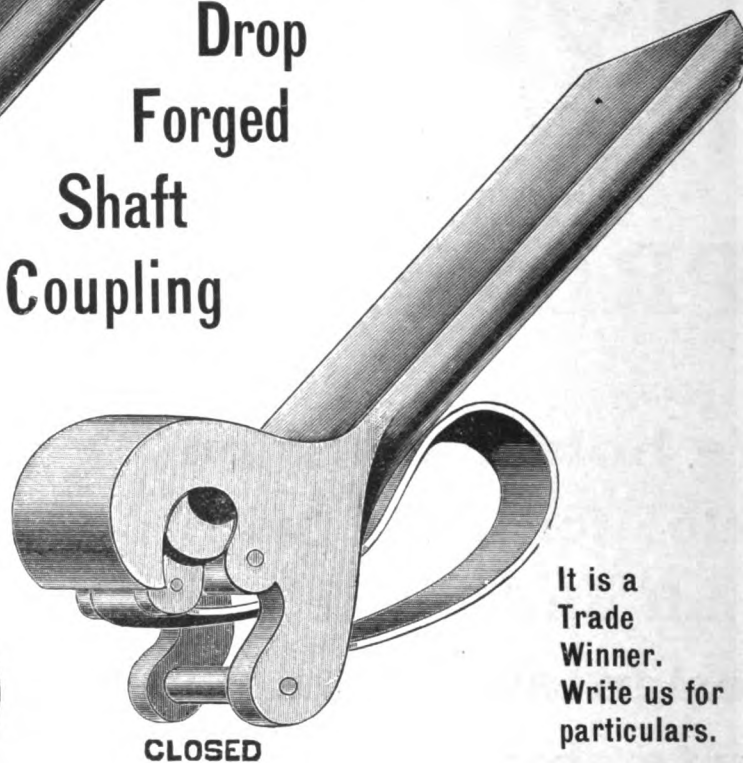


Please mention "The Hub" when you write.

The American (Automatic)



Drop Forged Shaft Coupling



It "captured" two conventions this year.

It is a
Trade
Winner.
Write us for
particulars.

EMPIRE STATE SHAFT COUPLING CO. UTICA, N. Y.

C. COWLES & C^o

Ask us to quote
on Carriage and
Coach Lamps,
Axle and Saddle
Clips, Oval and
Flat Corner
Irons, "Excel-
sior" Curtain
Fasteners.

NEW HAVEN,
CONN, U. S. A.

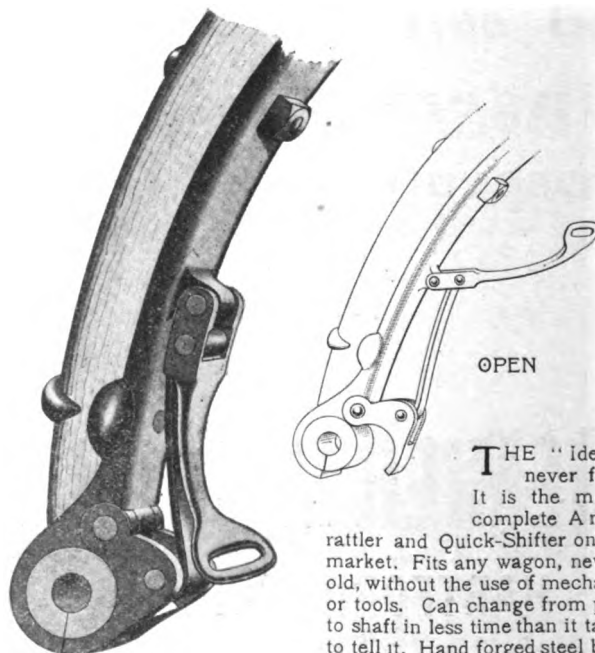
MILLED SHACKLE
BOLTS, CLOTH
AND METAL
BUTTONS,

Door Handles,
Shaft Tips.

WE ARE HEADQUARTERS FOR ABOVE.

LARGEST VARIETY
OF LAMPS FOR
..1901..

IDEAL Quick Shifter and Anti-Rattler



THE "Ideal"
never fails.
It is the most
complete Anti-

rattler and Quick-Shifter on the
market. Fits any wagon, new or
old, without the use of mechanic
or tools. Can change from pole
to shaft in less time than it takes
to tell it. Hand forged steel bolt,
HEAVY BEARINGS, NO

RUBBER OR LEATHER to get out of order. Oneida Community
trap steel spring. A postal card will bring you price list. The
"Ideal" is extremely popular—it helps sell carriages. They are
their own testimonial. Send fifty cents for a trial pair.

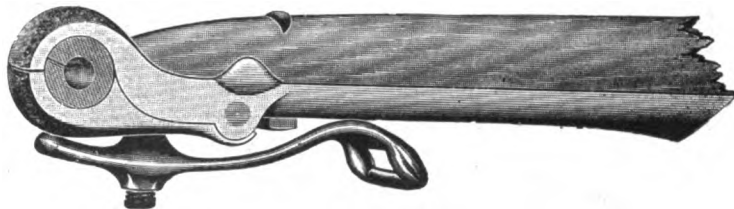
LOOK FOR OUR NEW COUPLER AT CINCINNATI.

IDEAL MFG. CO., Oneida, N. Y., U. S. A.

Please mention "The Hub" when you write.

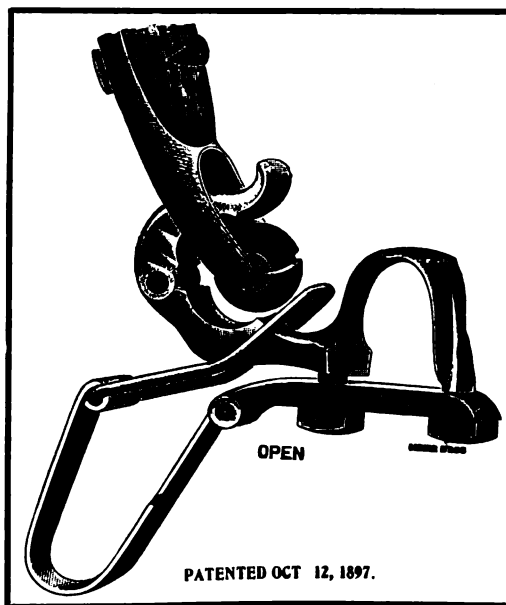
Eccles Adjustable Shaft Eye.

PATENTED AUGUST 28th, 1906.



Ball Bearing Shaft Coupling.

SEND FOR DESCRIPTIVE CIRCULARS AND PRICES.



PATENTED OCT 12, 1897.

ALSO GET OUR CATALOG SHOWING FULL LINE OF

Carriage Forgings.

RICHARD ECCLES CO.,

AUBURN, N. Y.

C.H.A.T.

Helps Secure Situations.

Carriage, Harness and Accessory Traveling Salesmen's Association

OF THE UNITED STATES.

All Commercial Travelers in Above Lines Eligible.
No Others. Pays Death Benefits.

Membership Fee, - - \$3.00

Annual Dues, - - - - 1.00

Employers of Traveling Men eligible to join as associate members on payment of \$5.00, and are exempt from all further dues.

Manufacturers of carriages, harness or goods that enter into their construction, jobbers of same, can secure good, reliable and efficient salesmen through our Association, as the members of this Association have the best facilities for knowing all about men who are seeking situations, and none will be recommended unless they are first class and worthy of support.

Salesmen in need of a situation, or manufacturers in need of a salesman, address for further information,

L. H. KRONFELD, Secretary.

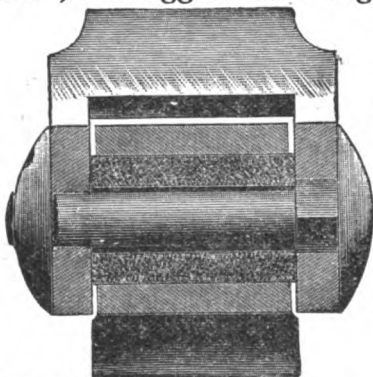
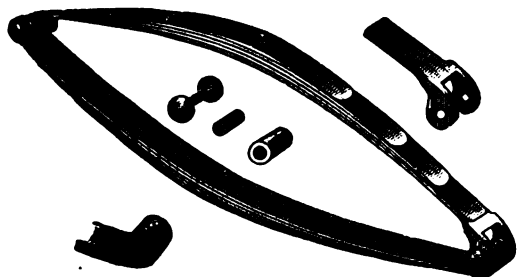
Box 57, Mount Vernon, N. Y.

Elliptic and Coach Platform Springs

WITH RUBBER OPEN-HEADS.

LARGE SIZE.—Designed for Broughams, Landaus and Coaches.

SMALL SIZE.—Designed for Buggies and Light Carriages.



The Rubber Open-Head

SPRINGS

Work Freely Without Friction.

No Binding or Squeaking in
the Heads or Eyes.

SPRINGS OF EVERY STYLE AND PATTERN TO ORDER,
ALSO CURTAIN ROLLERS AND CONCEALED HINGES.
Exclusively First-Class Work.—The Best that Can be Made.

Spring Perch Co.,
BRIDGEPORT, CONN.

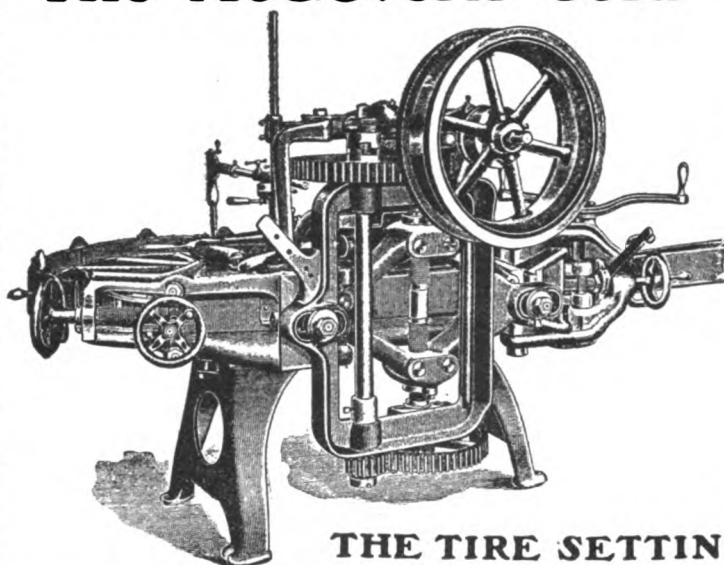
Please mention "The Hub" when you write.

The McGovern Cold Tire Setting Machine

HAND AND POWER MACHINES

To Supply the Demands of the

**CARRIAGE AND WHEEL TRADE, AND ALSO THE
BLACKSMITH AND GENERAL REPAIRER.**



A power machine with an automatic attachment, and where the operator has absolute control of the machine; can stop or start it instantly at any point in its operation.

Simple in construction. Powerful in operation. Reasonable in price. Does its work thoroughly, accurately and rapidly, giving proper and uniform dish to wheels.

THE NEW MODEL MCGOVERN COLD TIRE SETTING MACHINE

with its increased capacity, simplicity and strength, all three points being more than tripled in this new machine, we guarantee to set Tires ranging from $\frac{3}{4}$ inch to $2\frac{1}{2}$ inch x $\frac{1}{2}$ inch. Our daily capacity from 800 to 1,000 wheels.

We shall be at the Pan-American Exposition in Buffalo. Our machine will be in operation at the factory of the Buffalo Spring & Gear Co., three minutes' walk from the grounds.

THE TIRE SETTING MACHINE CO., Lime Rock, Conn.



A New
Tire Drill

Most rapid working tool on the market for this class of work.

Capacity:
Any wheel up to 36 in. diam.
Any width of tire up to 6 in. wide.
Any hub up to 10 in. diam.

Better get some details of this Drill.

Send for Catalogue.

Established 1872.

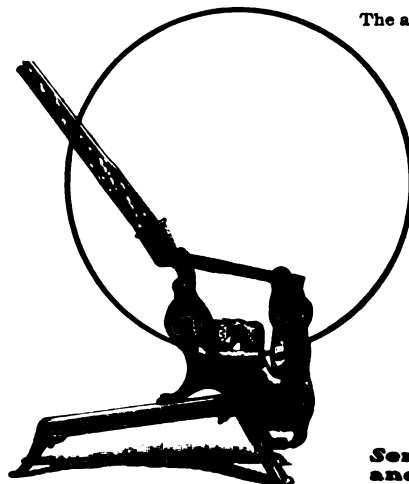
W. F. & JNO. BARNES CO.

588 Ruby Street, ROCKFORD, ILL.

The Ideal Tire Upsetter

The advantages of the ideal are:

- The tire cannot kink.
- One man can operate it.
- One movement does the work.
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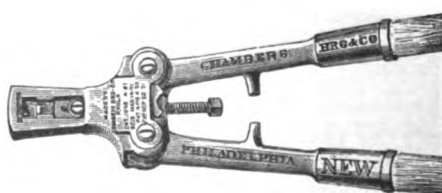
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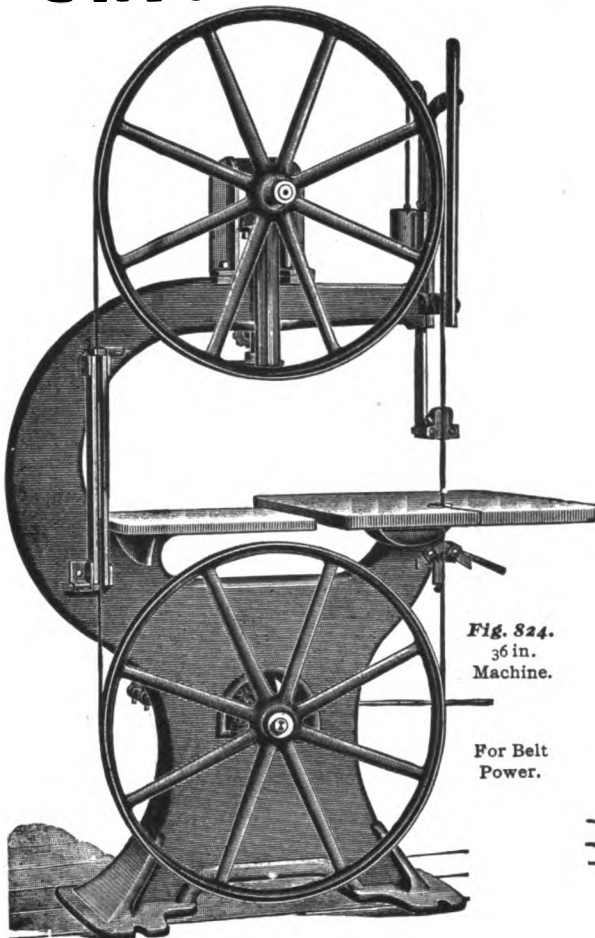


Fig. 824.
36 in.
Machine.

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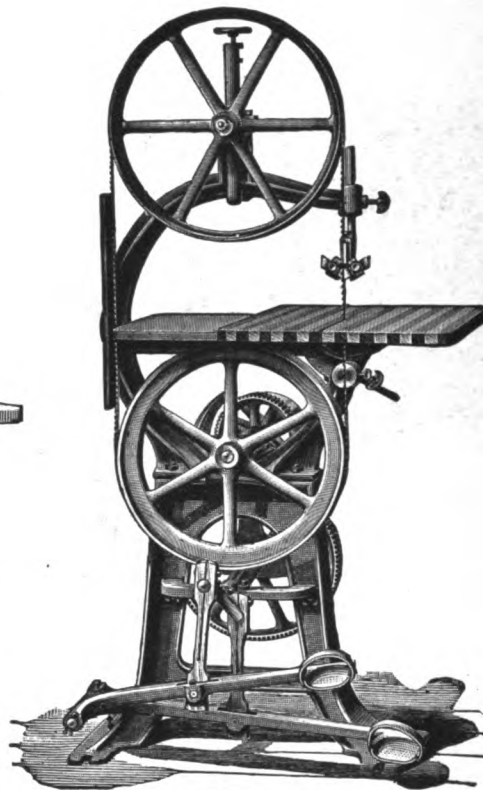


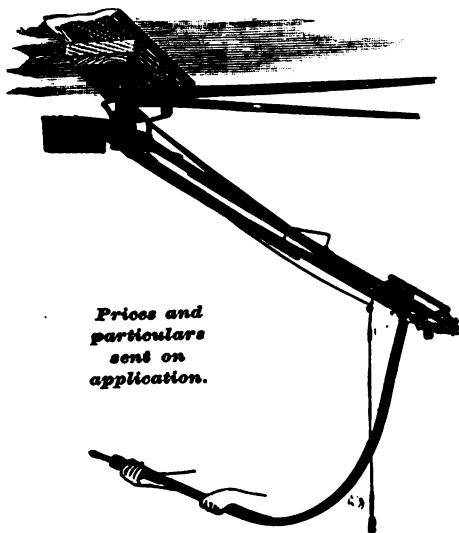
Fig 721.

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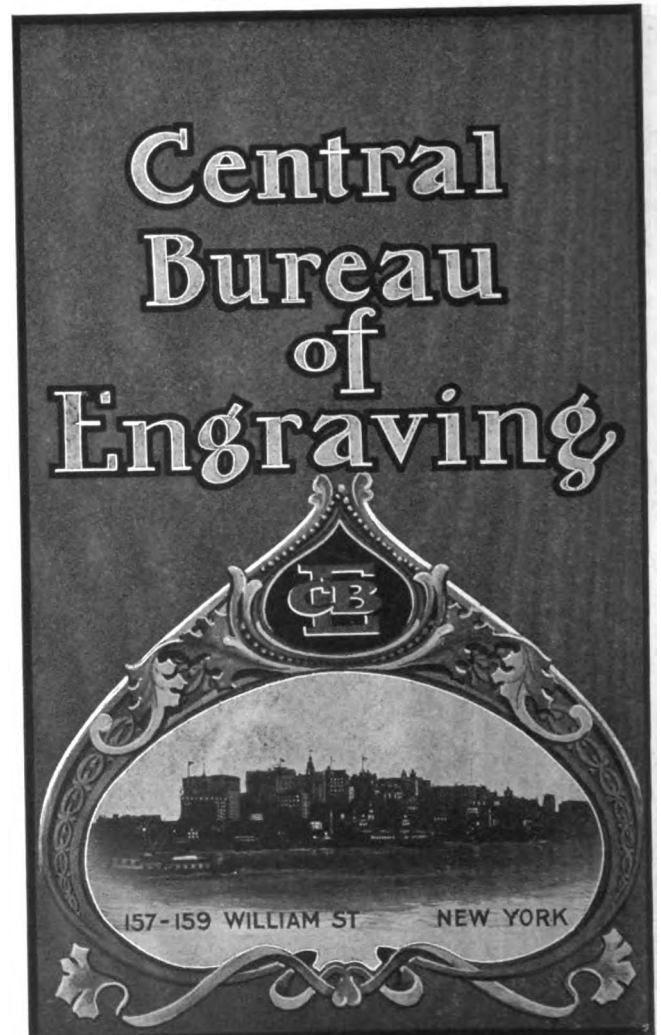
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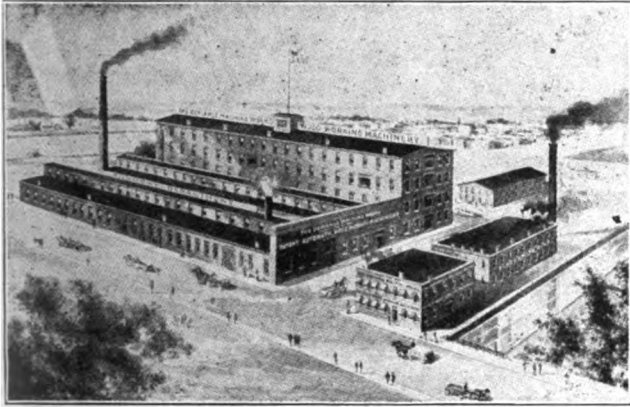
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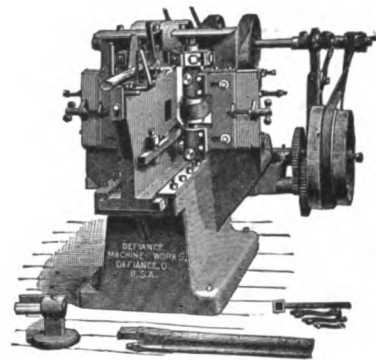
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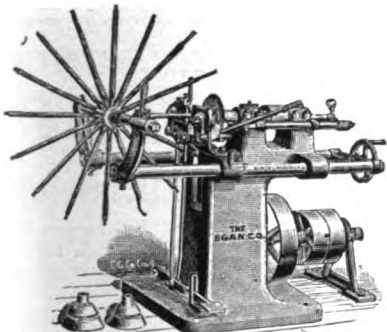
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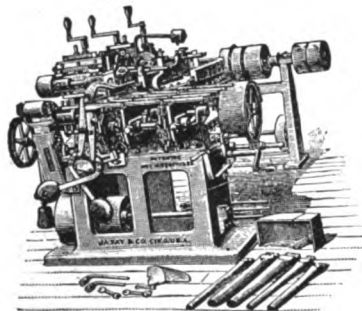


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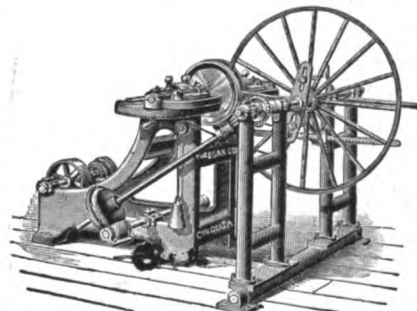
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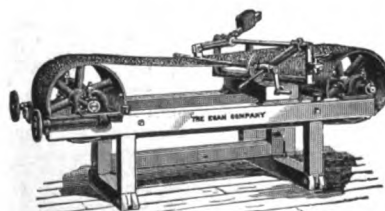
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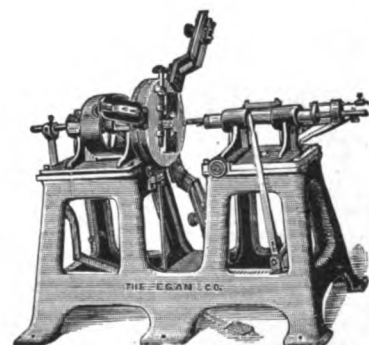


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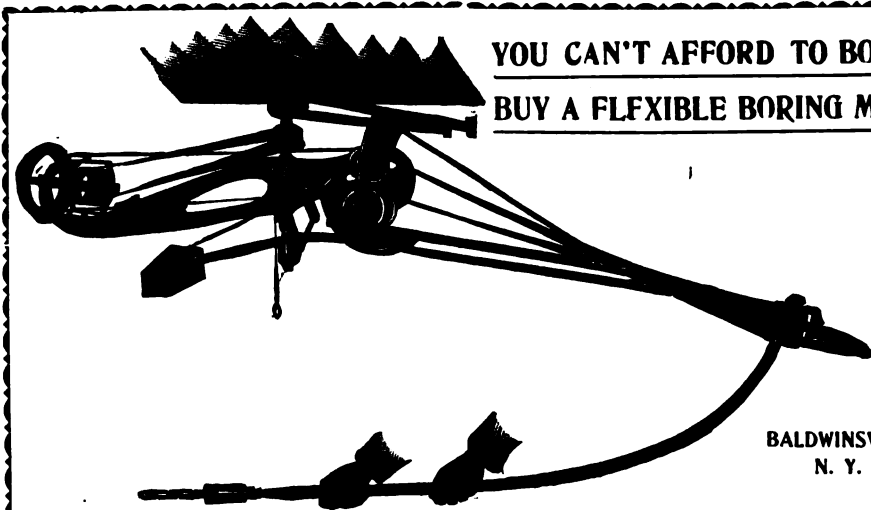
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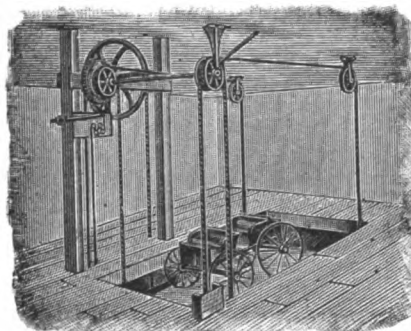
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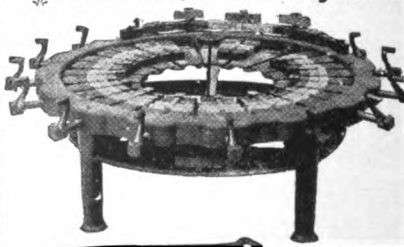
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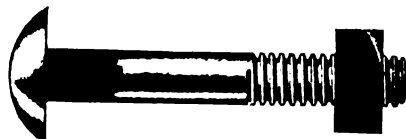
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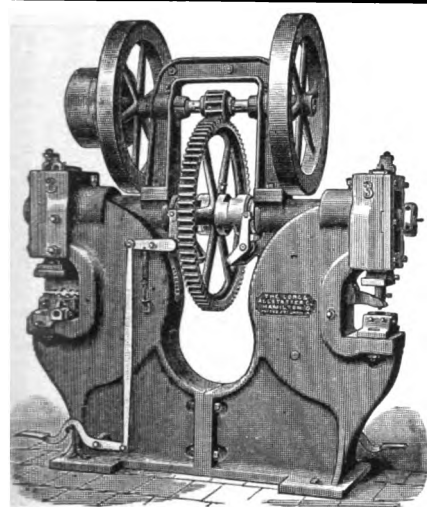
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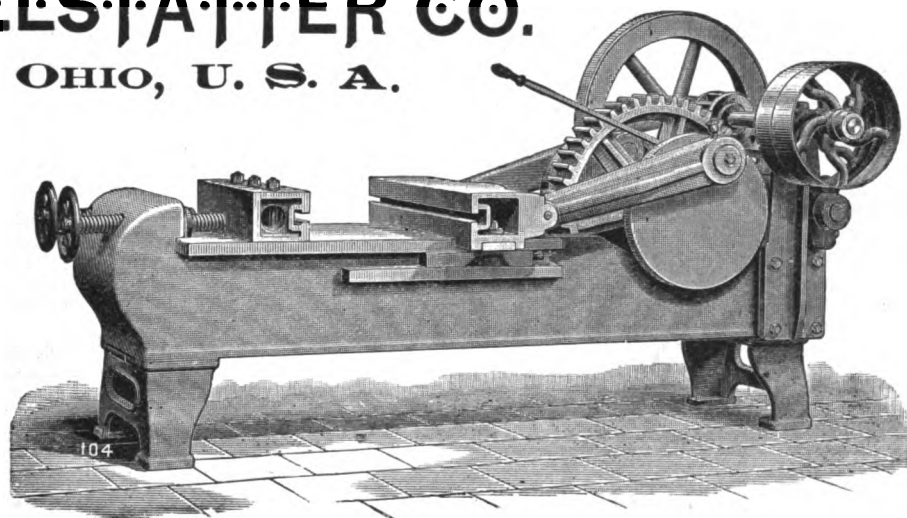
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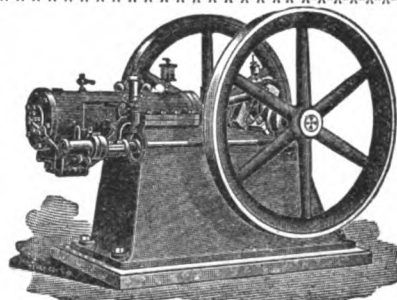


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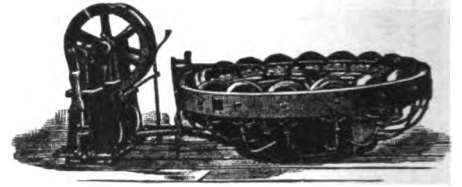
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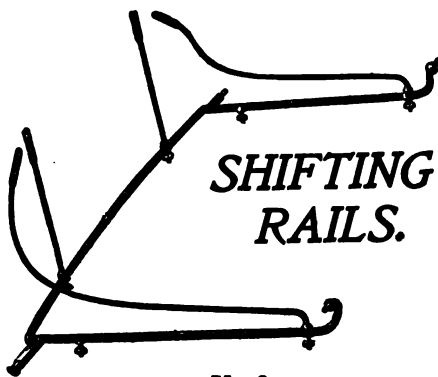
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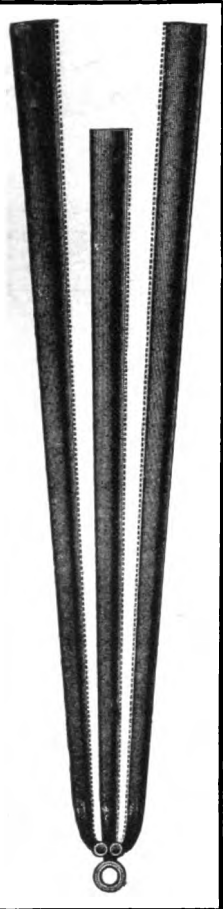
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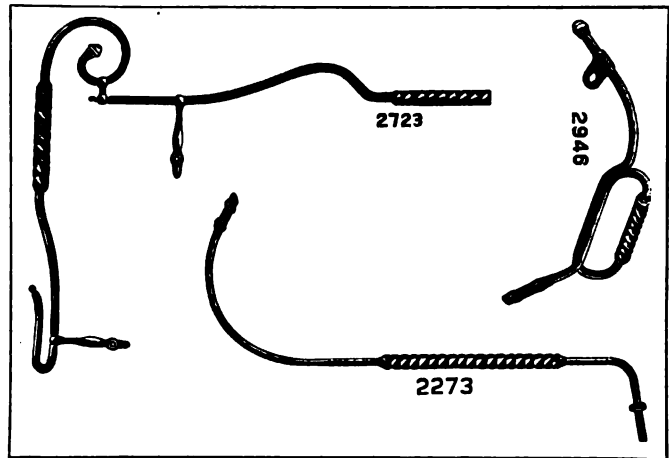
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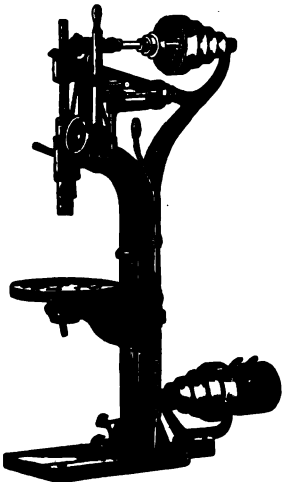
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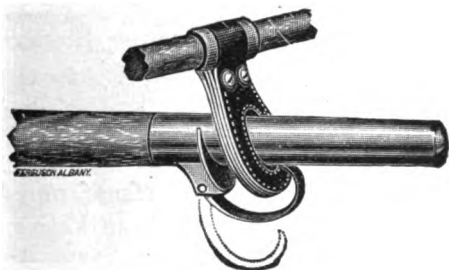
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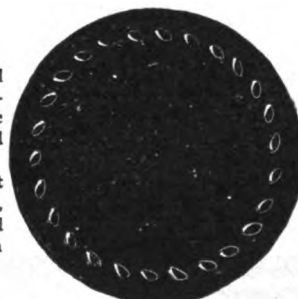


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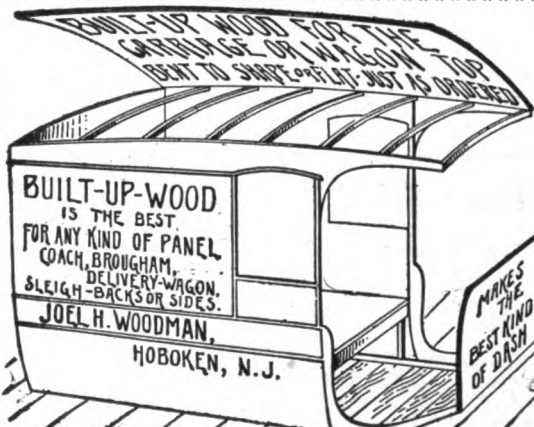
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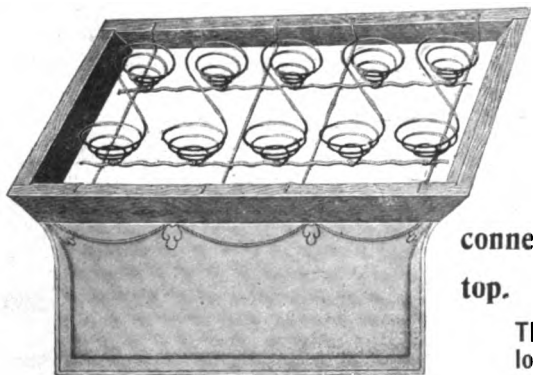
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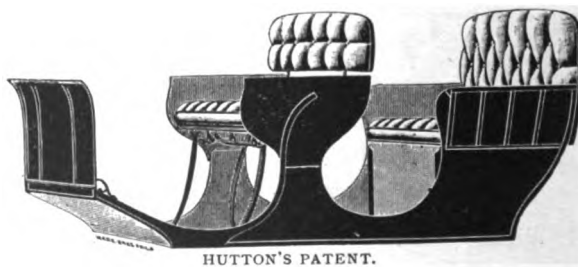
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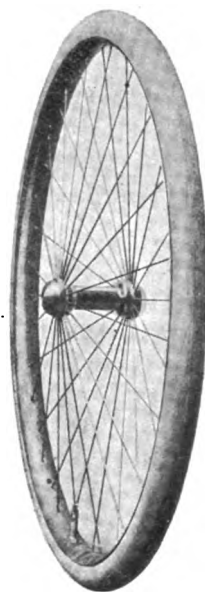
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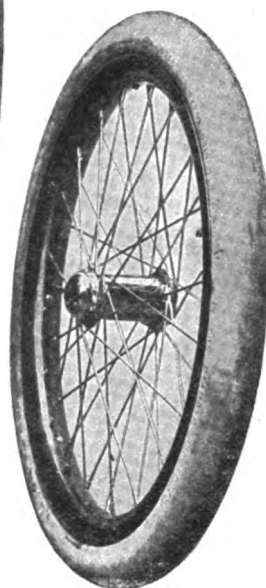
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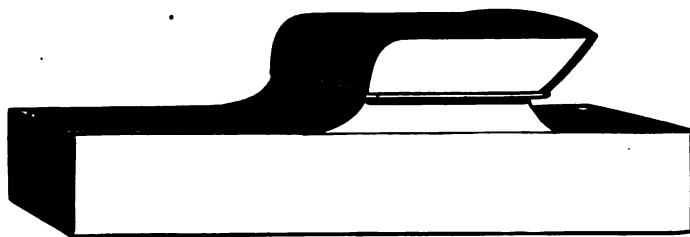


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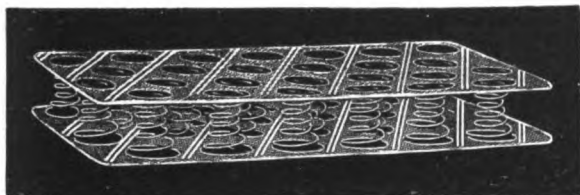
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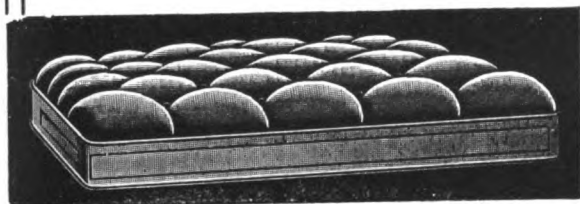
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INDEX TO ADVERTISERS.

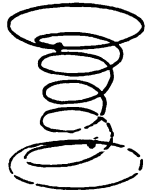
A		Dewes & Whiting..... 11	Kimbark, S. D..... 98	Rowland, Wm. & Harvey....2d cover
Acme Supply Co..... 45		Dickinson Bros. 73	Kokomo Rubber Co..... 21	Russell & Co., J. W..... 92
Albro-Clem Elevator Co..... 88			Kramer, W. F..... 58	Russell, Burdsall & Ward Bolt & Nut Co.88, 89
Allentown Platform Spring Co... —				Russell & Erwin Mfg. Co..... 92
American Bicycle Co.42, 47		B	L	S
American Roller Bearing Co..... 68		Eastman Metallic Body Co., The. 56	Landers Bros. Co..... 96	Saul, John A..... 96
American Steel & Wire Co..... 97		Eberly & Orris..... 61	Lee & Porter..... 64	Schmid, F. J..... 95
Armleder Co., O..... 35		Eccles Co., Richard..... 91	Lehman Bros. 5	Schubert Bros. Gear Co..... 57
Armstrong Mfg. Co., J. B..... 67		Egan Co., The..... 87	Liggett Spring & Axle Co..... 65	Scranton & Co., The..... 91
Aubry Carriage Co., Lee J..... 35		Elmendorf Varnish Co..... 5	Long & Allstatter Co..... 89	Seinsheimer Paper Co..... 94
Auto Dynamic Co..... 9		Empire State Shaft Coupling Co. 82	Lounsbury & Sons, G. H..... 96	Selle Gear Co..... 64
Automobile & Cycle Parts Co.... 48		English & Mersick Co..... —	Lowell Model Co..... 47	Sheldon Axle Co..... 65
Avoca Wheel Co..... 59		Erie Railroad Co..... 73		Sherwin-Williams Co. 1
		Excelsior Carriage Co..... 32		Shortsville Wheel Co..... 8
B			M	Shuler, W. S., & Thomas Sp. Co. 6
Babcock Co., H. H..... 38		P	McCormick, Edward H..... 96	Silver Mfg. Co..... 86
Bailey & Co., S. R..... 74		Fancher Mch. Co., The..... 88	McKinnon Dash Co.....4th cover	Smith & Co., Edward4th cover
Bantam Mfg. Co..... 72		Pay & Co., J. A..... 87	Masury & Son, John W..... 4	Smith & Co., Joseph N..... 91
Barnes Co., B. F..... 92		Felton, Sibley & Co..... 2	Meeker Mfg. Co..... 66	Smith, M. A..... 92
Barnes Co., W. F. & John..... 84		Firestone Tire & Rubber Co..... 20	Metal Stamping Co..... 100	Somerset Mfg. Co..... 98
Berry Bros. 2		Fitch Gear Co..... 58	Meyercoed Co. 70	Sovereign, C. E..... 56
Big Four Route..... 73		Flinckinger Wheel Co..... 60	Miller Bros. 39	Spears Axle Co..... 64
Black, W. F..... 65		Fowler Elastic Enamel Paint Co.. 7	Miller Carriage Supply Co., The. 56	Sprague Umbrella Co., The..... 98
Blees, McVicker Carriage Co.... 28		Frantz Body Mfg. Co..... 57	Mitchell Co., P. R..... 94	Spring Perch Co..... 83
Boob, W. W..... 61			Mobile Co. of America.....43, 46	Standard Anti-Friction Equip-ment Co.12, 13
Boston Roller Chafe Iron Co.... 56		G	Morse Twist Drill & Machine Co. 92	Standard Tire Setter Co..... 88
Bradley & Sons, C. C..... 76		G & J Tire Co..... 46	Mulholland Spring & Gear Co... 69	Standard Tool Co. 5
Bridgeport Coach Lace Co..... 96		Galion Wagon & Gear Co..... 35	Murphy Varnish Co..... 53	Standard Varnish Works..... 3
Brighton Buggy Co..... 25		Geneva Automobile & Mfg. Co.... 46		Staples & Hanford..... 91
Bringardner & Conkle..... 61		Gerhab, Jacob 96	N	Staver Carriage Co..... 33
Brown-Lipe Gear Co..... 45		Glidden Varnish Co., The..... 99	National Mercantile Agency..... 90	Stearns Steam Carriage Co..... 42
Buffalo Spring & Gear Co.....40, 41		Goodyear Tire & Rubber Co..3d cover	Neustadt, Perry Co..... 72	Stephan & Son, J. H..... 61
Buhne Steel Wool Co..... 3		Goff & Co., S..... 44	New Jersey Car Spring & Rub-ther Co. 95	Stevens & Sackett Co..... 32
		Grand Rapids Engraving Co.... 25	New York Belting & Packing Co. 18	Sterling Buggy Co..... 24
C				Stow Mfg. Co..... 86
Calman & Co., E..... 4		H	O	Suwanee Spoke & Lumber Co.... 95
Calumet Tire Rubber Co..... 14		Hagerstown Spoke & Bending Co. 61		
Caulfield, John 71		Halliday, C. A..... 95	Olds Motor Works..... 42	T
Central Bureau of Eng..... 86		Harland & Son, Wm.....2d cover		Thompson, F. H..... 98
Chamber Bros. Co..... 84		Hartford Axle Works..... 63	P	Timken Roller Bearing Axle Co.. 85
Chicago Flexible Shaft Co..... 57		Hartford Rubber Works..... 15		Tire Setting Machine Co..... 84
Chicago, Milwaukee & St. Paul R. R. 97		Hay-Budden Mfg. Co..... 88		Tuthill Spring Co..... 68
Cincinnati Panel Co..... 56		Hess Spring & Axle Co..... 64		
Clark, Edward S..... 45		Higgin Mfg. Co..... 55		U
Cleveland Bag Factory..... 94		Hildreth Varnish Co.....4th cover		U. S. Sanitary Co..... 61
Cleveland-Canton Spring Co.... 77		Hoopes Bros. & Darlington..... 60		
Clyde Line 2		Horton, H. A..... 37		V
Cole Co., G. W..... 44		Hutton & Co., G. H..... 96		Valentine & Company..... 8
Columbia Wagon Co..... 30				Victor Rubber Tire Co..... 17
Columbus Bolt Works 89		I		
Columbus Machine Co..... 89		Ideal Mfg. Co..... 82		W
Columbus Varnish Co..... 10		Illinois Central Railroad..... 90		Walter, N. C., & Sons..... 44
Consolidated Rubber Tire Co....22, 23		Industrial Locations 20		Wapakoneta Wheel Co..... —
Cook, H., & Sons..... 30		India Rubber Co..... 19		Waterloo Wagon Co.....26, 27
Cooper Bros. 92		Initial Toe Pad Co..... 95		Watertown Carriage Co..... 31
Cooper Co., J. A. & D. P..... 68		Irwin, H. E..... 8		Weston & Co., I. A..... 97
Cortland Carriage Goods Co.... 91				Weston-Mott Co.78, 79
Cortland Forging Co..... 90		J		West Tire Setter Co..... 90
Covert Saddlery Works..... 93		Jackson Cushion Spring Co..... 96		Weyburn & Briggs Co..... 84
Cowles & Co., C..... 82		Jones & Co., Phineas..... 54		Wheel & Wood Bending Co..... 61
Crandal, Stone & Co..... 62		Jube & Co., John P..... 96		White Mfg. Co..... 30
Crane & MacMahon..... 60				Wilcox Mfg. Co., D..... 75
Crest Mfg. Co..... 47		K		Wiley, C. A.....2d cover
		Keuffel & Esser Co..... 58		Williams, Max 43
D		Keystone Carriage Co. 36		Wilmot & Hobbs Mfg. Co..... 5
Dalzell Axle Co..... 66		Keystone Forging Co..... 2		Woodman, Joel H..... 95
Decatur Buggy Co..... 28		Keystone Paint & Filler Co..... 2		
Defiance Machine Works..... 87		Kimble, Andrew 63		Z
Derby & Co., W. E..... —				Zacher & Co., C. P..... —
Detroit Spring & Steel Co..... 1				Zwick & Greenwald Wheel Co.... —
Demmerle & Co..... 47				
Devoc, F. W., & Reynolds Co., C. T.2d cover				

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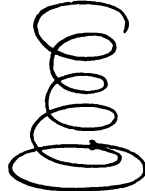
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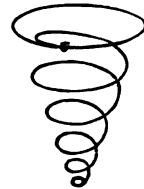
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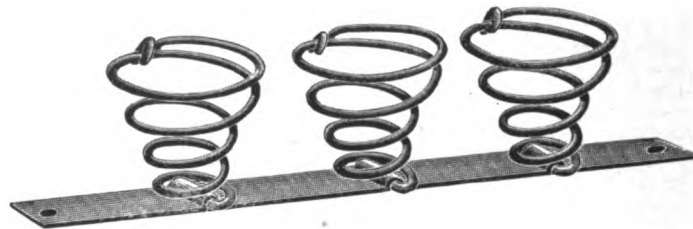
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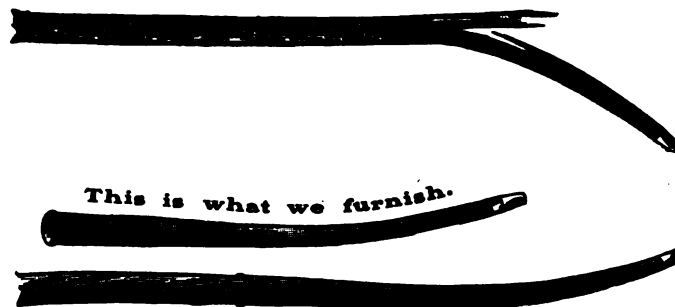


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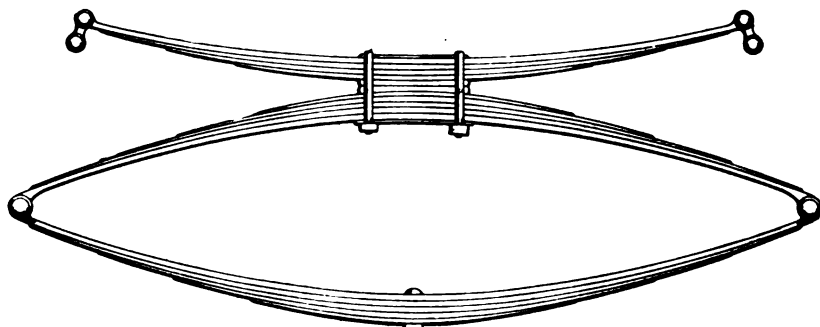
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Economy with Perfect Method does not bring poor materials, poor workmen and poor work.

It doesn't mean that you cut down expenses and sacrifice the quality of painted work turned out.

On the contrary, it means greater durability, greater beauty of finish and greater uniformity than can be obtained in any other way.

The economy of Perfect Method is brought

about by increasing the output of your paint shop without increasing in any way your regular fixed charges or the cost of materials and labor in painting. This is the way Perfect Method does it:

By cutting down the time of painting each vehicle over one third.

By giving you all the painters' time for painting. They don't have to mix or manipulate Perfect Method; it reaches your shop ready for use.

By doing away with all waste material.

By eliminating all care of detail that comes with shop made systems.

By avoiding claims for repainting on the work you turn out.

A postal card will bring the P. M. Booklet.

TO GET THE P. M. BOOKLET, ADDRESS 32 MICHIGAN ST., CLEVELAND.

THE SHERWIN-WILLIAMS Co., PAINT AND COLOR MAKERS.
CLEVELAND, CHICAGO, NEW YORK, NEWARK, MONTREAL, BOSTON, TORONTO, SAN FRANCISCO, KANSAS CITY, LOS ANGELES.

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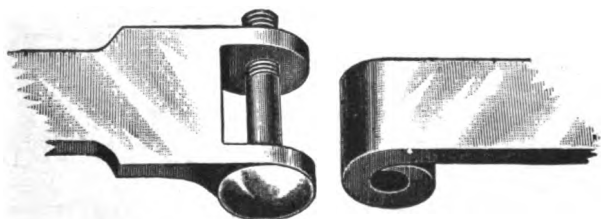
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Manufacturers of all kinds of

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Soft Welding and
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All Grades and Sizes of
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KEYSTONE PRIMER
FOR WOOD  AND IRON
PREPARED EXPRESSLY FOR CARRIAGE WOODWORK

DRIES HARD & QUICKLY. **WILL NOT CRACK OR SCALE.** **SURFACES CLOSE AND FINE.**

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FOR COACH, CAR  AND SAFE FILLING
THE ONLY BLACK FILLING IN THE WORLD

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Varnish Troubles and Color Kinks



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on the market

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PAINTER**

We make VARNISHES
You are using Varnishes every day
You know therefore how important it is that
You should have thoroughly RELIABLE VARNISHES
We make that kind, the reliable kind, and that kind only.
You needn't believe it because we say so, but if
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We'll submit gratis samples that
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STEEL WOOL.

It cuts more quickly and more uniformly than sandpaper, does not clog or "gum up," and adapts itself readily to the shape of carvings, mouldings, etc., etc.

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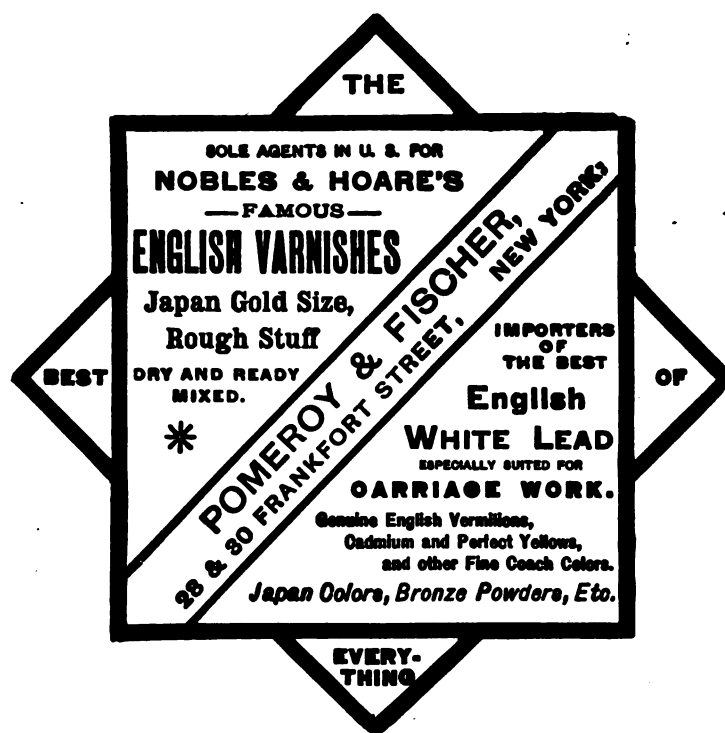
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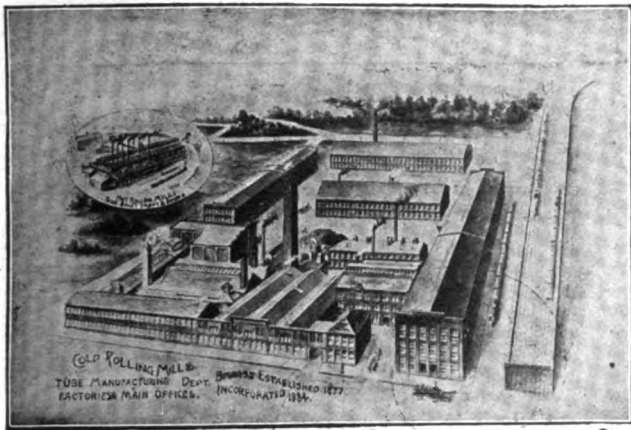
NEW YORK and CHICAGO



HAVE YOU ANYTHING NEW that you desire to bring to the attention of the trade? Now is your opportunity to push it. Manufacturers are already beginning to order such devices as will make their vehicles more up to date and better sellers. Perhaps yours is just the article they are looking for. Let us help you. Request will bring rates.

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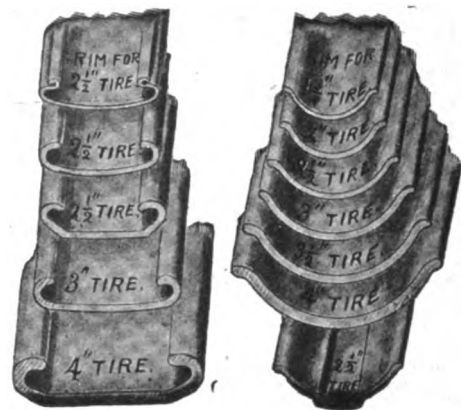
We are the most experienced and thoroughly
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And we make our own Steel so we KNOW what
goes into our Rims.

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SIGHT!

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Thomas Patent Spring.

No Special Body
or Gear necessary.

A set with all con-
nections weighs
fifteen pounds.

Saves thirty-five
pounds on weight
of Gear.

Acts as an equal-
izer and keeps the
body level, as it
turns at center in
an indestructible
vulcanized fibre
bearing.

Gives a Soft, Easy
Motion. Is Noise-
less, Stylish, Elastic
and Non-Breakable

THE THOMAS BIKE GEAR

With Thomas Patent Springs and Fifth Wheel.

The Thomas
Patent Spring
allows the front
axle to have three inches
higher arch, the body remain-
ing the same height from the
ground. This allows more leg
room for speeding and couples the
horse close. They have no end
pitch. Are hung close to axles,
front and rear, bringing the
wheels three inches closer
together.

**YOU CANNOT
BREAK IT!**

We furnish this
Gear as shown.
Also the Thom-
as Patent Springs or Fifth
Wheel separate.

Send for catalogue and prices, which
also shows cut and description of the
Thomas Patent Fifth Wheel, and
further information.

W. S. SHULER & THOMAS SPRING CO.,

Sole Manufacturers,
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U. S. A.

AMSTERDAM, N.Y.

Pointers About the Fowler Way of Finishing.

We do not putty glaze; simply putty holes. This applies to all classes of work.

Primers are in paste form.

Primers for all classes and kinds of work thinned with turpentine.

Fillers are in paste form.

Fillers for all classes and kinds of work thinned with turpentine.

Colors ready for immediate use.

Our colors are as others, in that if they stand a considerable time they will thicken up. Thin with turpentine if they become thick or heavy.

We speak in our suggestions as to the use of our materials with certain brushes. The painter will know best what to use, however, after having done a job or two with our goods.

A large concern which has been experimenting extensively with our goods recently made a mistake in covering the gears of some light spring covered wagons with yellow instead of red. On learning of their mistake, when too late to change and get the jobs out in time, they bethought themselves of our colors, and put on two coats of our Standard Red over the yellow, and it covered perfectly. And they were thereby able to carry out their contract both as to time and colors. Yet they will tell you that one coat would have done an ordinary grade job.

What do you think of it?

After using our materials you will be able to adapt them to your class and character of work better than we can tell you. Our direc-

tions are based simply on our experience. Change them as best suits your convenience.

Our primers prime, seal, hold and are a foundation for other coats.

Our fillers fill, cover and hold. Our colors fill, cover, color and hold.

We not only save material but labor as well. We therefore save space in the shop.

Our primers and fillers sand easily to a good, smooth, hard surface.

Our primers and fillers are not "Painter Killers."

In the "Fowler Way" you do not have to rub in the materials with your hands or rags. Just simply brush it on as finishing material should be.

Here is a good test: Take some spokes and finish one our way and the others with other known ways of finishing. After they have become thoroughly dry and hard place them in a vise. Then take a Stilson wrench and twist them until they are entirely broken in slivers; take the slivers and break and twist them and see which material stands best. Before twisting the above spokes, take a knife or thumb nail and try their elasticity. If the order depends on your investigation, we will get it.

Speaking of elasticity, every coat of our material is elastic. Not the elasticity you have heard about all your life, but the genuine sure-enough elasticity.

We use the word ENAMEL because it should suggest a non-porous surface.

We believe our materials are less porous than any other similar materials ever offered to the public.

The Blacksmith and Wheelwright says:

"Our representative was shown a wheel which had been subjected to very severe tests."

After stating length of time done, usages to which it had been put, observes:

"There is not a ring crack anywhere in the paint surface. The color hasn't faded a particle and even the polish is still good. This wheel was further tested at the New York show and Cincinnati conventions by giving it repeated hard blows with a hickory spoke. Of course the wood was bruised but the enamel was not chipped off in any instance. Hundreds of experienced carriage painters expressed their wonder and astonishment at this test."

The Carriage Monthly (December) says:

"We have occasionally met people who said 'painting is painting. All we need is a brush and some paint. We take no stock in these new-fangled notions.'

"The old method of painting vehicles is utterly unworthy of notice when compared with some of the new modern systems, which have been made known to the trade through these columns. The latest of these systems to attract attention is 'THE FOWLER' demonstrated and explained at this season's exhibitions, and which attracted wide attention and secured for them a good many friends and patrons. It is not too much to say that it was a revelation to a great many carriage builders."

If interested write

Fowler Elastic Enamel-Paint Company

390-392 Wabash Avenue, - - - - - CHICAGO, ILL.

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SWEET { **Hub Wheels**
—MAKE FINEST—
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Made with Twelve Spokes...
3½ Diameter Hubs or Larger

CAN FURNISH THEM FITTED WITH

Crescent
Flat Base
V-Shaped **CHANNELS**

Write for Prices and order Sample Set.

SHORTSVILLE WHEEL CO.,
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All Coupon Ticket Agents sell tickets via
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*Our Body and Gear Varnishes have no Equal
for Brilliancy, Durability and Easy Working
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Columbus Varnish Co.,

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THE "TRACER" TELLS.

THE "TRACER" TELLS Isn't it worth your while to learn what other Wholesale merchants know about Retailers who seek credit from you? The "Tracer" tells.

THE "TRACER" TELLS Isn't it worth your while to learn from other Wholesale merchants what record your would-be customer has made with them? The "Tracer" tells.

THE "TRACER" TELLS Isn't it worth your while to be able to ask several thousand merchants everywhere what they know about a man you want to know about? The "Tracer" tells.

THE "TRACER" TELLS Isn't it worth while to learn that one of your customers, who is prompt in New York, Philadelphia or St. Louis, is getting *very slow pay* in Chicago and Boston? The "Tracer" tells.

THE "TRACER" TELLS Isn't it worth while to learn your customers' inside business history, not from outside guesses, but from inside records; *the actual experience of those who have dealt with them?* To learn those things that determine character and business ability as well as financial strength? The things that make you trust or distrust a man? The things that come up in actual business dealings, but which an outsider cannot know? The "Tracer" tells.

THE "TRACER" TELLS Is he honest? Is he tricky? Is he careful, prudent, shrewd? Has he the qualities of success? Does he cancel orders unjustly? Does he make false claims for deductions? Is his record good or bad? Are his methods good or bad? The "Tracer" tells.

THE "TRACER" TELLS and it is the *only* thing that tells. Every business man leaves a record, widely scattered in the ledgers and in the minds of merchants far apart. That record, if gathered, is the best proof of what a man actually is, in his business relations. The "Tracer" gathers these scattered leaves and makes the record complete. The "Tracer" goes to thousands of Wholesale merchants everywhere. From them come a dozen detached bits of experience, concerning one man: together they show his whole business past, and his present condition. Has he ever bought? The "Tracer" tells. Is he getting slow? The "Tracer" tells. Is it time for caution? The "Tracer" tells.

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REMOVAL...

The Holman Gear Co., of Valparaiso, Ind., have sold out to The Akron Gear Co., of Akron, O., who will continue the manufacture of the celebrated "Holman Gears."

THE HOLMAN GEAR COMPANY.

• • •

By the purchase of the Holman interests and adding same to the "Akron" and "Nichols" patents which we now control, we have the best and largest Patent Platform Gear line in the U. S.

Mr. Nichols, of the Selle Gear Co., of Akron, O., will have charge of the mechanical departments of the "Akron" and "Nichols" lines, while Mr. Holman will devote his whole time to the manufacture of the Holman Patents.

THE AKRON GEAR COMPANY.

Please mention "The Hub" when you write.

Victory for the



In an affidavit E. S. Kelly, Vice-President of the Consolidated Rubber Tire Company, states that they have NOT been able to run their factory (a small one) to ONE-THIRD its capacity, on account of The Goodyear Tire and Rubber Company.

We are running the LARGEST tire factory in the world

Twenty-four hours per day
every working day in the
week. *o o o o o o o o*

WHY?

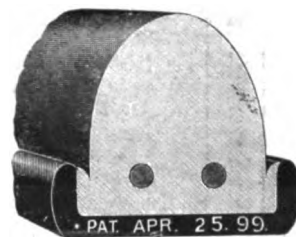
Because our tires are made of RUBBER and they are GOOD. Our customers are FAIRLY treated, and they are SATISFIED.

THE GOODYEAR TIRE

AKRON,

Goodyear

Having no better means of holding their **RAPIDLY DWINDLING** trade they are **STRENUOUSLY** endeavoring to **FRIGHTEN** the trade into the belief that a decision recently rendered by Judge Wing favorable to the Grant Patent makes all users of Goodyear and "two-wire" tires liable to action for injunctions and damages.

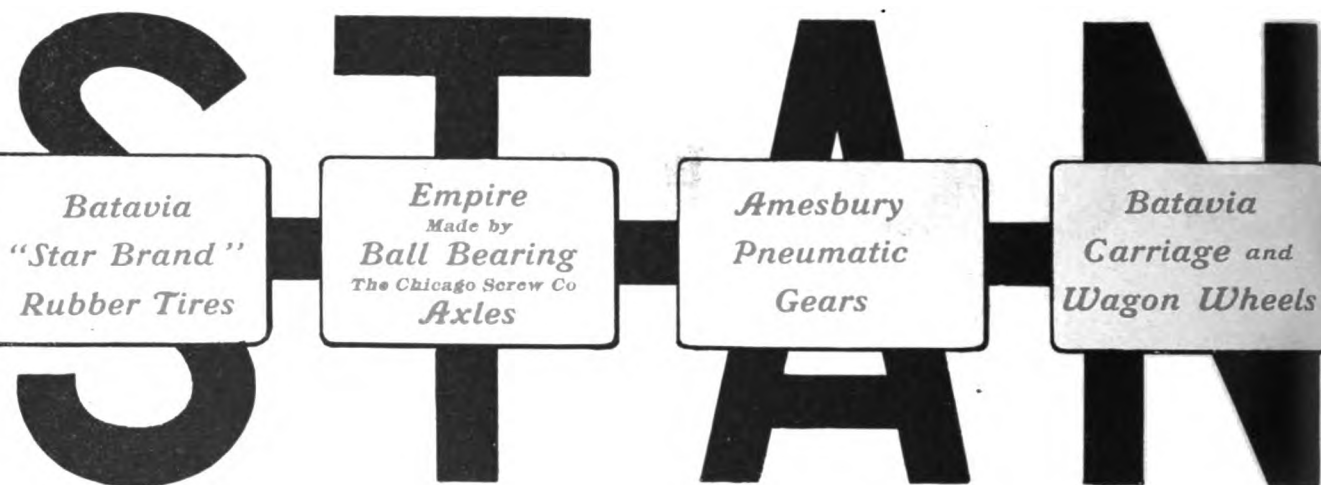


Their claims are **RIDICULOUS** and **ABSURD** and an insult to the intelligence of the carriage trade.

We have the **RIGHT** to manufacture and the trade have an **ABSOLUTE** and **UNQUALIFIED RIGHT** to use any form of tire we have ever made.

Moreover, the tire we are making, the **BEST** ever produced, as shown in above cut, is **NOT INVOLVED** in any pending litigation.

AND RUBBER COMPANY,
OHIO.



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"Star Brand"
Rubber Tires

Empire
 Made by
Ball Bearing
The Chicago Screw Co
Axles

Amesbury
Pneumatic
Gears

Batavia
Carriage and
Wagon Wheels

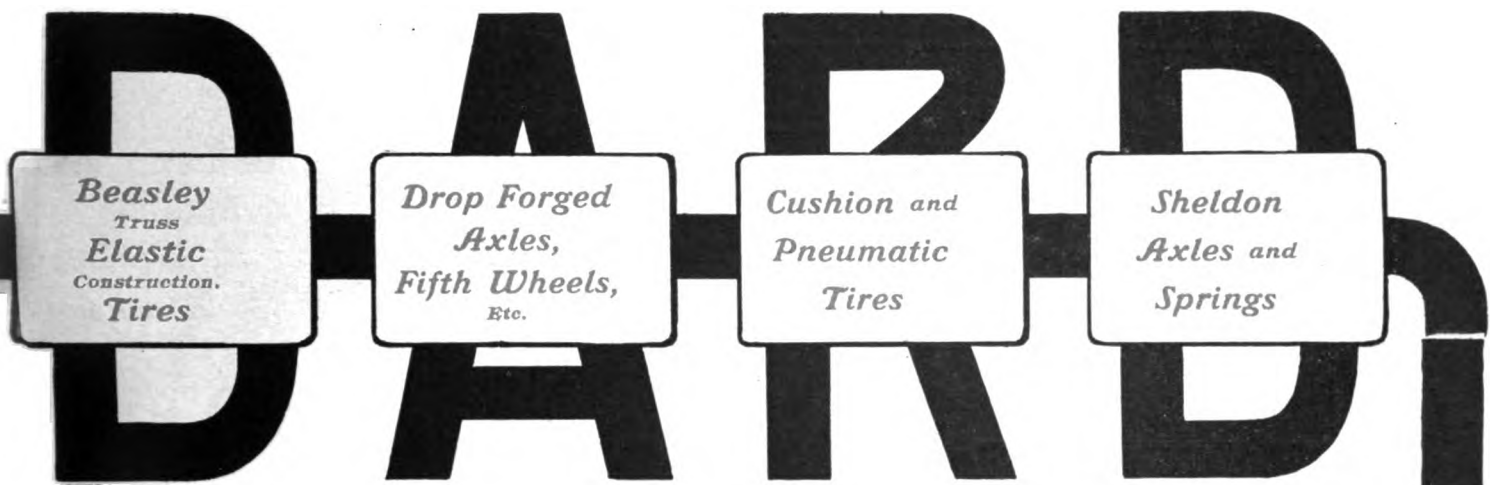
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THIS COMPANY
 IS OWNED, CONTROLLED
 AND OPERATED BY THE
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EQUIPMENT CO.

Mr. Carriage Manufacturer:-

Our representatives, Messrs. A. C. Farnsworth, W. W. Leavenworth, J. S. Beatty, Newton Gresser, R. L. Kingston, and A. J. Rust, are out after your orders. If they did not secure them at the Tri-State Exhibition, you will receive a call in the near future. They are authorized to quote you prices that should secure your business.

We desire to particularly call your attention to our latest improved machine for applying rubber tires, and also to the advantages to be gained from the use of "Star" Brand tires.

Respectfully,

S. A-F. E. Co.

Address all communications to S.A-F.E.Co. 50 Broadway, New York.

THOSE WHO ARE SEEKING

A strictly high grade equipment and a quality that is standard the country over cannot afford to overlook our line.

The Hartford Single Tube Tire

and the

Dunlop Detachable Tire

have a name and fame everywhere as being the most successful and reliable of their respective types.

THEY RAISE THE STANDARD OF ANY PRODUCT
IN THE ESTIMATION OF THE PURCHASER.

Hartford Solid Rubber Tires

may be most favorably judged by the reputation of our other products. (Can this be done with the solid rubber of many of our would-be competitors).

OUR REPUTATION WILL NOT PERMIT OF OUR
MAKING ANY INFERIOR ARTICLE.

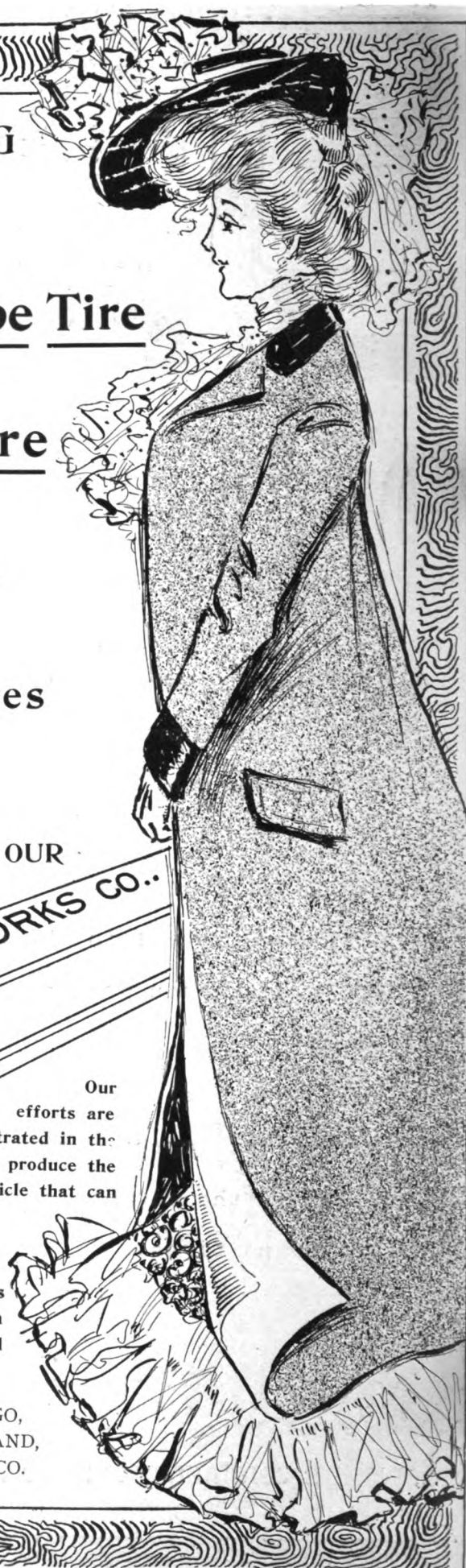
Let us furnish you advice
regarding the tire best
adapted to your
requirements.

THE HARTFORD RUBBER WORKS CO.
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Our efforts are concentrated in the endeavor to produce the highest grade article that can be made.

Special attention is called to facilities which are extended through our Branch Houses for taking care of Hartford and Dunlop Tires and their users.

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KOKOMO

TIRES

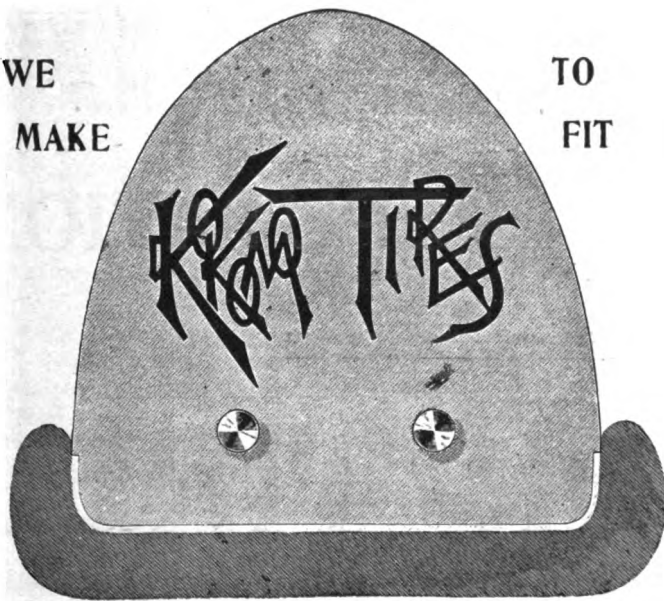
ONE QUALITY ONLY

• AND •

THAT THE BEST

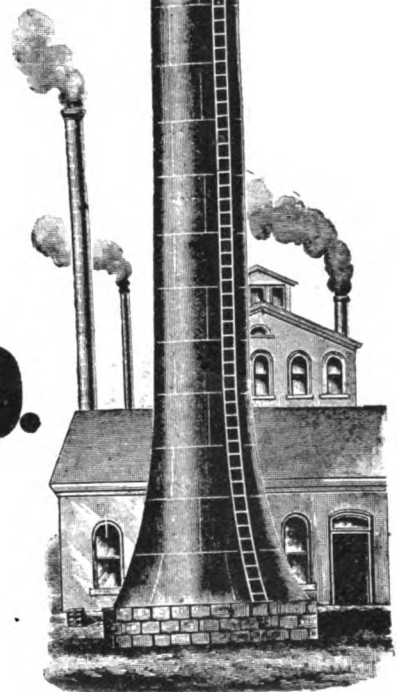
WE
MAKE

TO
FIT



KOKOMORUBBERCO.

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Private Character

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is the foundation of

PUBLIC VIRTUE

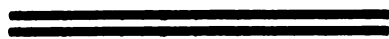
so are

HONEST METHODS

in the manufacture of

RUBBER TIRE

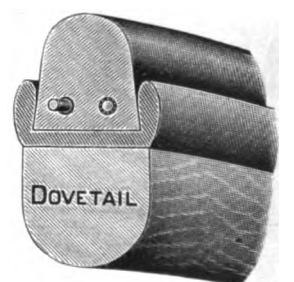
the foundation of an

ENVIABLE REPUTATION.**VICTOR TIRES**

have it, and justly so.

**THE VICTOR RUBBER
TIRE CO.,
SPRINGFIELD, OHIO.**

NEW YORK, BOSTON AND BRANCHES.



Patented.

Please mention "The Hub" when you write.

INDIA RUBBER TIRES



WE have reached the acme of perfection in making solid, cushion and pneumatic carriage and automobile tires. Our many customers attest to this and fully appreciate its importance.

We have the quality and the price is right for high grade goods.

We were one of the first rubber concerns in the country to manufacture carriage tires. Why not profit by our experience.

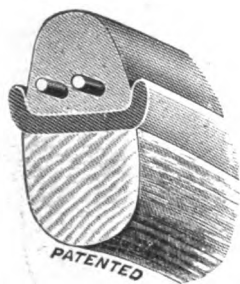
Your correspondence is solicited.

THE INDIA RUBBER CO.

AKRON, OHIO.

NOT EVEN “WINGS” CAN SAVE THEM

Read the decision of Judge Wing in the United States Court in a suit brought by the Rubber Tire Wheel Co. and the Consolidated Rubber Tire Company against the Goodyear Tire and Rubber Company of Akron, Ohio, for infringement of the Grant Patent under which the Kelly Springfield Tires are made. This is the second decision handed down by the United States Court sustaining the Grant Patents. ::: [:::



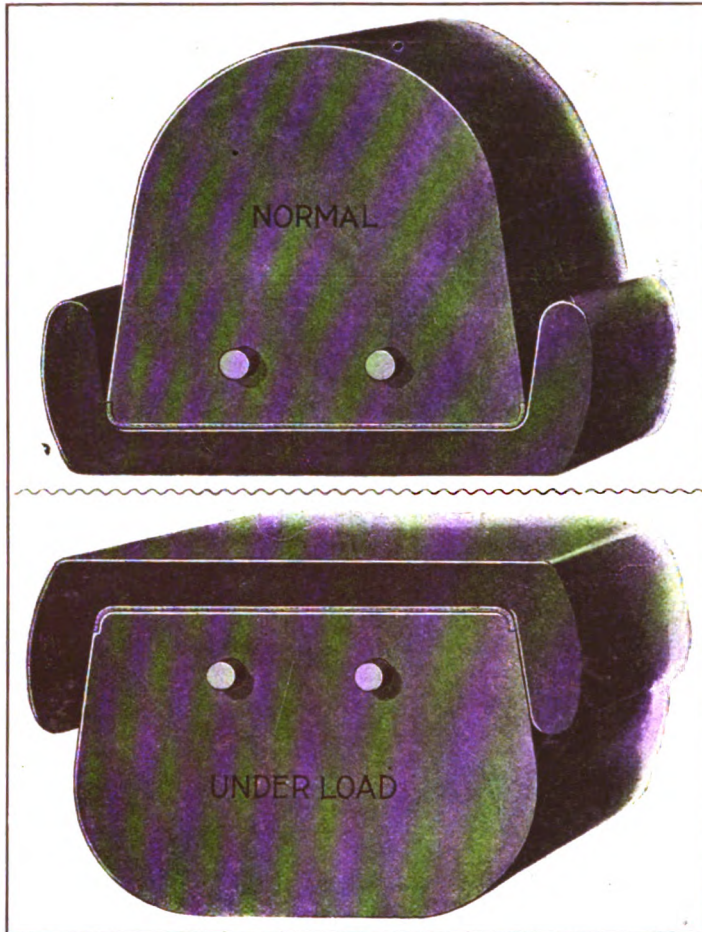
Your product into the high-grade ranks.

It is a mark of merit—the modern equipment for vehicles of quality.

Consolidated Rubber Tire Co.,

New York and Akron, Ohio.

Please mention "The Hub" when you write.



Carriage and... Automobile Trade

FURNISHED _____:

RUBBER, CHANNELS, WIRE

AND TOOLS FOR APPLYING.

SIZES: 3-4 IN. to 3 IN.

This Tire Fits Into the Standard Channels

REVERE RUBBER

BOSTON.

NEW YORK.

CHICAGO.

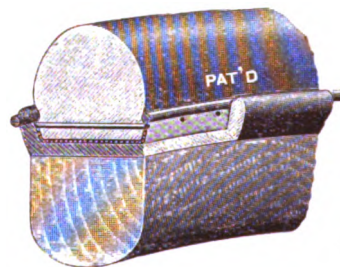


FIRESTONE SIDE-WIRE TIRE.

The Standard of Excellence in Rubber Tires.

HAS NO CHEAP IMITATIONS.

Solid. Molded in Coil.
Applied in Normal Condition.



Free from the weaknesses of
Inside Wire Tires, with points
of strength peculiar to itself.

Will draw trade, hold trade and give satisfaction.

Write for our new booklet and sample of tire before placing your contract for the coming year.

Firestone Tire & Rubber Co.,

AKRON, OHIO.

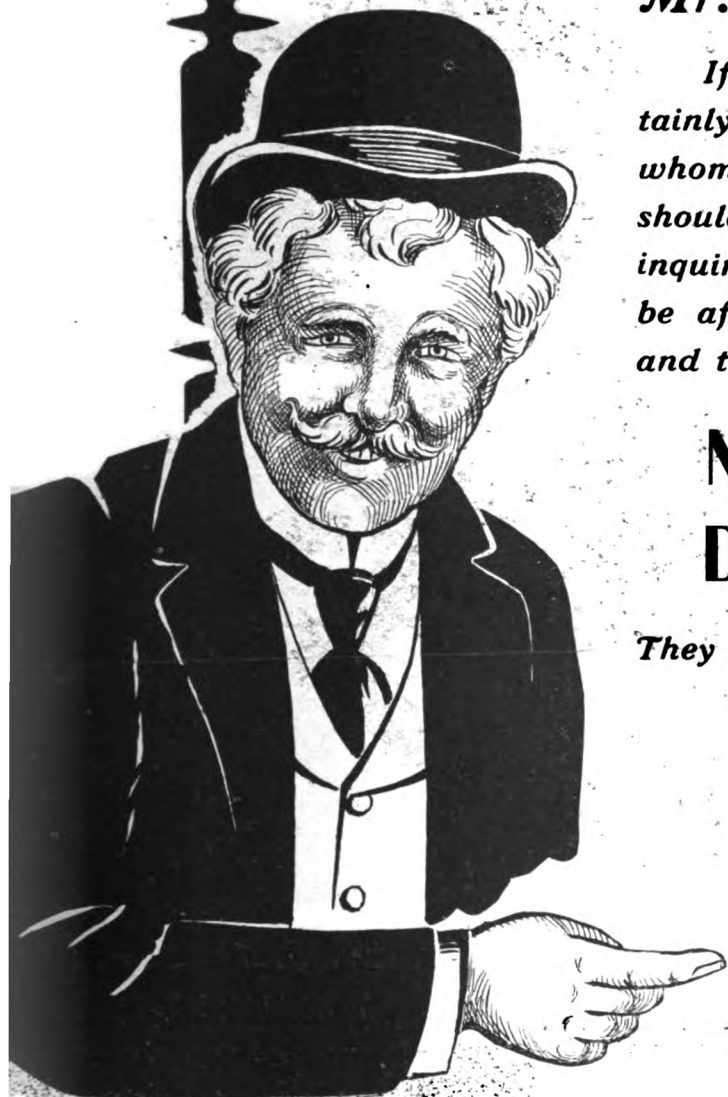
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BOSTON,
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Please mention "The Hub" when you write.

**Mr. DEALER:**

If you are progressive there is certainly some very desirable customer whom you have just won over. If he should come to you this spring and inquire about a Pneumatic Job don't be afraid to sell him one. Be frank and tell him he must have

**NEW YORK "LONG
DISTANCE" TIRES.**

They will hold his trade.

**New York Belting & Packing Co., Ltd.****STORES:**

NEW YORK, 25 Park Place.

BOSTON, 24 Summer St.

PHILADELPHIA, 724 Chestnut St.

BALTIMORE, 101 Hopkins Place.

CHICAGO, 150 Lake St.;

INDIANAPOLIS, 229 S. Meridian St.

ST. LOUIS, 411 N. Third St.

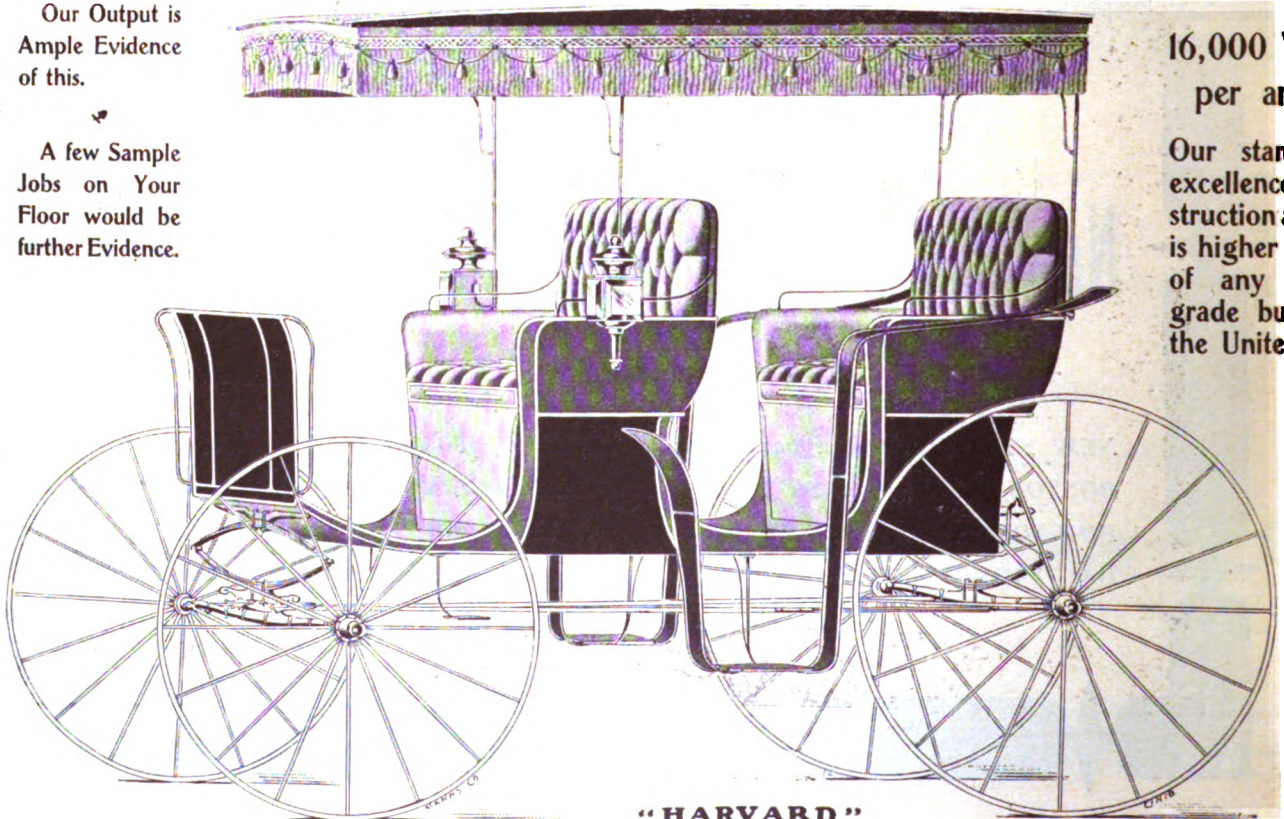
SAN FRANCISCO, 509-511 Market St.



Begin the New Year with our New "BRIGHTON" Styles. THEY WILL BRING ... MANY HAPPY RETURNS.

Our Output is
Ample Evidence
of this.

A few Sample
Jobs on Your
Floor would be
further Evidence.



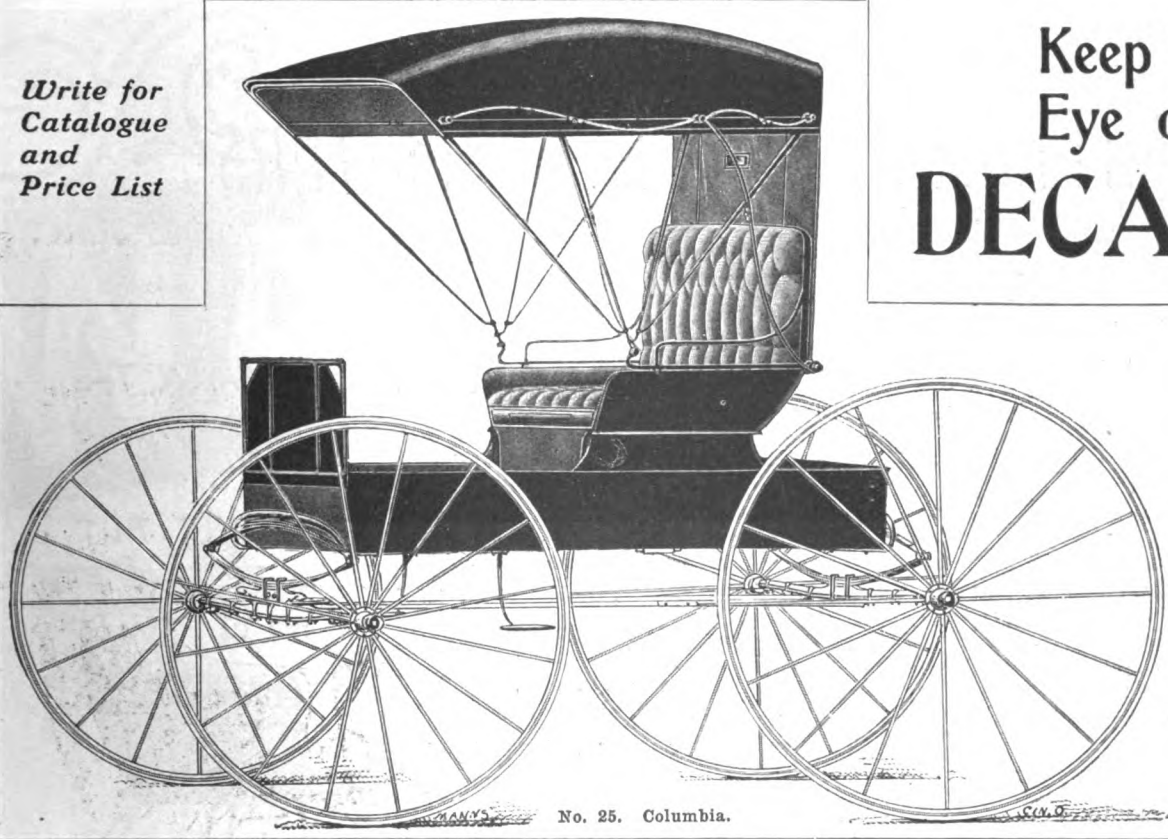
**16,000 Vehicles
per annum.**

Our standard of
excellence in con-
struction and finish
is higher than that
of any medium
grade builders in
the United States.

"HARVARD"

THE BRIGHTON BUGGY CO., ... CINCINNATI, OHIO.

Write for
Catalogue
and
Price List



Keep Your
Eye on ..
DECATUR

*Get in
Line
With
the
Decatur
Buggy
Co.*

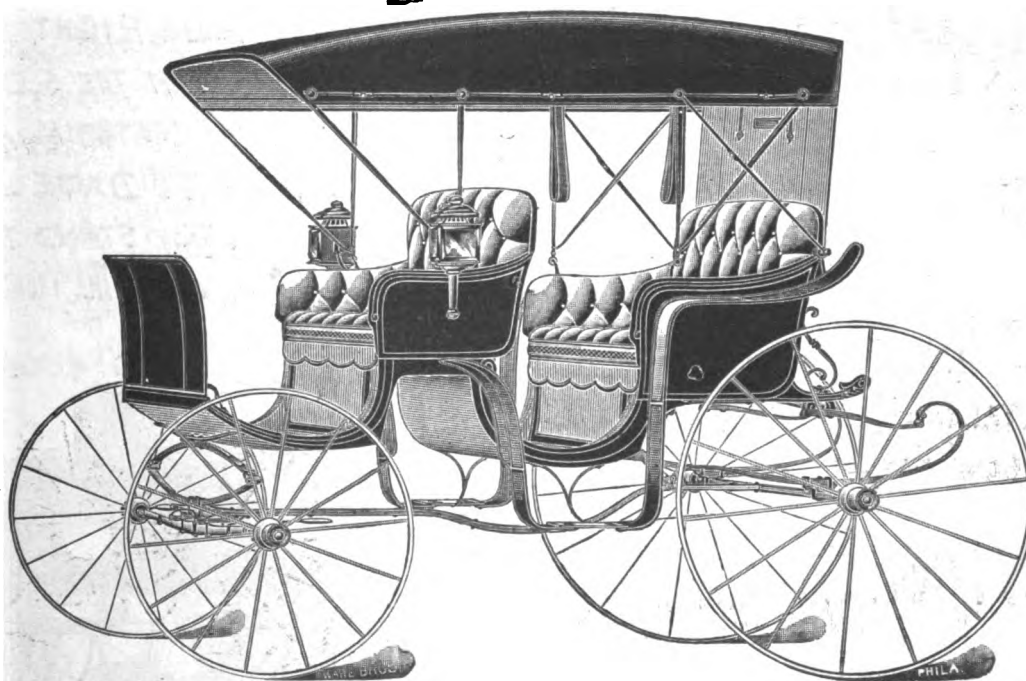
*One of
the
Winners at
Cincinnati*

DECATUR BUGGY CO.

MIDDLETOWN, OHIO.

BLEES-McVICKER CARRIAGE CO.,

Manufacturers
of **FINE VEHICLES.**



●
STYLE,
QUALITY,
WORKMAN-
SHIP.
●

●
It will
Pay You to
Investigate
●
WRITE FOR
CATALOGUE.
●

===== **MAGON, MISSOURI.** =====

Please mention "The Hub" when you write.

WATERLOO SLEIGH POINTERS

BEST VALUES

GOOD STYLES

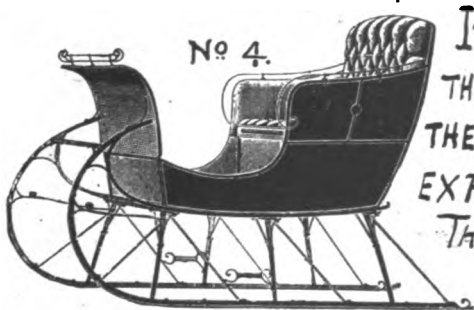
FINE FINISH-DURABILITY

WE ARE OFFERING DISCRIMINATING BUYERS THIS SEASON THE BEST SLEIGH VALUES TO BE FOUND IN THE SLEIGH MARKETS OF THE WORLD.

WE REALIZE THAT THIS IS A SWEEPING STATEMENT, BUT THE CONFIDENCE WE HAVE GAINED BY SELLING OUR SLEIGHS TO THE SAME TRADE YEAR AFTER YEAR FOR NEARLY TWENTY YEARS MAKES US WILLING TO STAND BY THE ABSOLUTE TRUTHFULNESS OF THE SAME WITHOUT ANY QUALIFICATIONS WHATEVER.

WE HAVE ON OUR LIST AS BUYERS OF OUR SLEIGHS A MAJORITY OF THE LEADING DEALERS OF THIS COUNTRY AND THEY TELL ^{US} THAT IN THEIR EXPERIENCE A DISSATISFIED USER OF A WATERLOO SLEIGH IS "A VERY RARE BIRD."

IT DOES NOT "HAPPEN SO" THAT OUR SLEIGHS LOOK RIGHT, RIDE RIGHT AND STAY RIGHT.



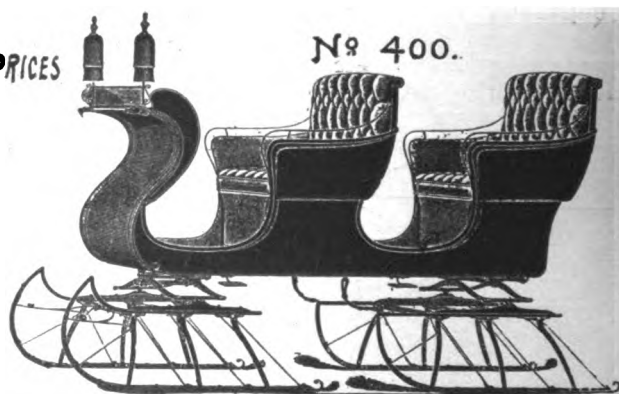
IT IS BECAUSE WE BUILD THEM ON THE OLDFASHIONED PRINCIPLE THAT IT PAYS US TO MAKE THEM RIGHT, COMBINED WITH THE KNOWLEDGE, ACQUIRED BY NEARLY TWENTY YEARS EXPERIENCE, OF HOW TO MAKE THEM RIGHT.

THERE IS NOTHING OLDFASHIONED ABOUT THE SLEIGHS EXCEPT THE OLDFASHIONED HONESTY OF THE MATERIAL AND THE WORKMANSHIP—ASIDE FROM THIS THEY ARE ENTIRELY UP-TO-DATE.

IN THE QUALITIES OF STYLE, FINISH AND PROPORTION THEY STAND FIRST AND IN THE MATTER OF EASY RIDING AND DURABILITY THEY RANK WITH "THE WONDERFUL ONE. HOSS SHAY"

CATALOGUE ON REQUEST AND LOWEST PRICES
QUOTED BONA-FIDE DEALERS

WATERLOO WAGON COMPANY LIMITED,
WATERLOO, SENECA CO., N.Y., U.S.A.

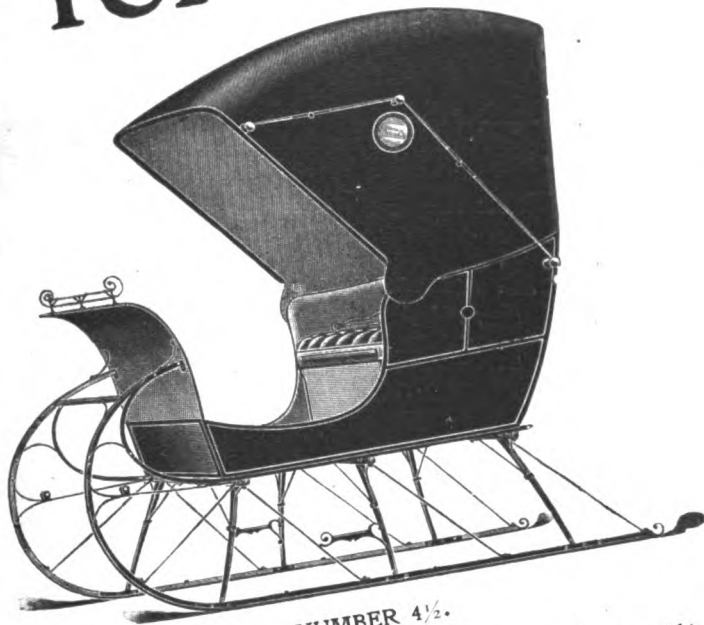


WAGON

COMPANY
LTD.,

WATERLOO

OUR TOP COMFORT



NUMBER 4 1/2.

We show above one of the best Top Sleights built for the trade.
Every detail of material, construction, comfort and safety is
up to the highest standard of custom sleigh building.
Our line of sleighs embrace all the desirable styles and grades
from a reliable medium priced Portland to the best examples of
the sleigh builder's art.
Catalogue and price list mailed to dealers, in territory not
already assigned, on request.

SENECA CO.

WATERLOO

N.Y.

FINE FINISH

LATE STYLES



PARRY MFG. CO.

INDIANAPOLIS, IND.

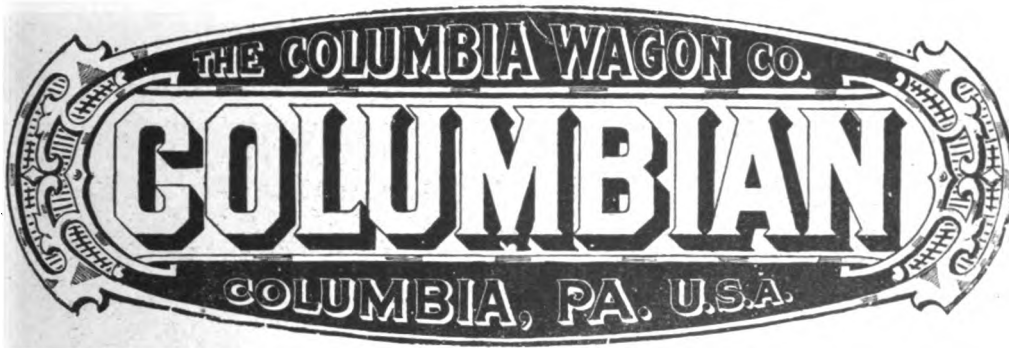
**Surreys, Buggies,
Phaetons
Fancy Drivers**

SPRING AND ROAD WAGONS

**UP-TO-DATE DESIGNS
ELEGANT FINISH
ATTRACTIVE PRICES**

.... 1902 CATALOGUE FOR THE ASKING













*"Next in advantage
to having the thing
to sell, is to have the
convenience to carry it
to the buyer."*

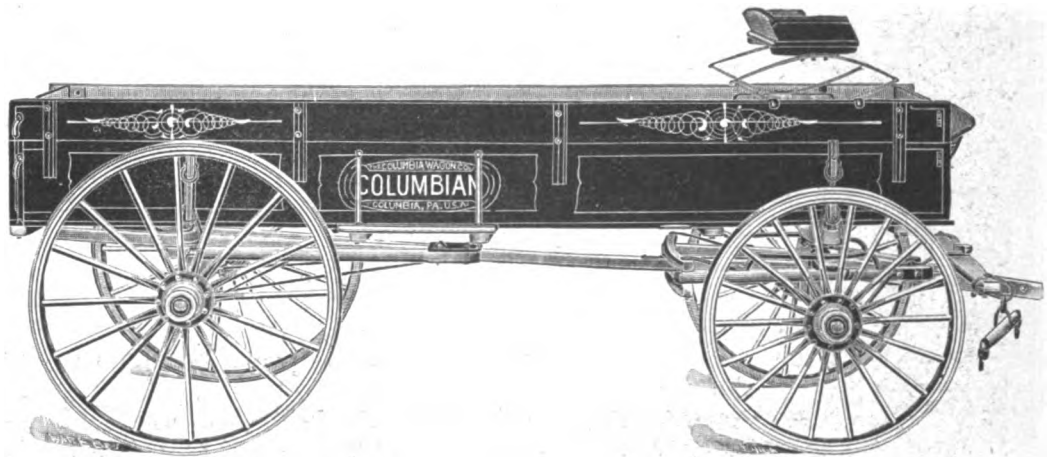
*Wm. McKinley
at Buffalo.*

BY THIS MARK YOU WILL KNOW THEM

*Our line of Farm and Road Wagons are quick sellers
and the largest money makers on the market  
Send for catalogue and prices and do not place your
order before looking us up      *

*Our Sarven
Patent Wheel
Farm Wagon*

*One of the many styles
we are building.*



IF YOU DON'T THINK

But depend upon your customer to think for you, put in a line of EXCELSIOR VEHICLES and you will be surprised at the lack of diversity in thought of your customers.

It will be EXCELSIOR'S every time. You will never find a customer who will prefer the other line and some of the other fellows will be sure to be thinkers too.

If you will give your thinking customers a chance on this line, your sales will show an increase. Our work is built not only to get, but to hold trade. Look us up.

EXCELSIOR CARRIAGE CO.,

WATERTOWN, N. Y.

New England Branch: White River Junction, Vt.

H. R. MILLER, Manager.

Please mention "The Hub" when you write.

CAN'T FREEZE US OUT.

Had a hot time in our plant recently. On the night of November 22d, fire got into one of our buildings, a slate roofed, brick structure, 300 x 50, containing our forge department, also engine rooms and electric lighting plant.

The flames destroyed pretty nearly everything, except the ground and our energy.

We resumed work with a considerable increase in this department on December 23d, thus entirely rebuilding our plant in twenty-five working days, as we did not work on Sunday.

These facts are given simply as a hint to show that when we get really warmed up to a subject something is going to happen.

And yet we still insist that we know more about making good wagon and carriage axles than we do about putting up buildings.

CLEVELAND AXLE MFG. CO.,
CANTON, OHIO.





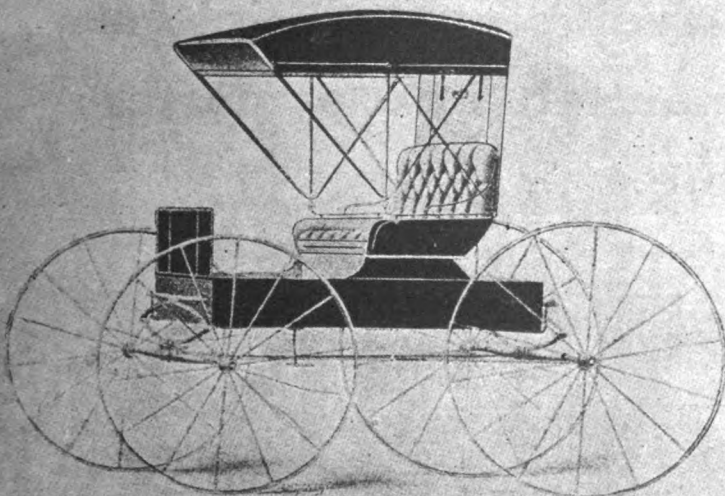
MR. DEALER

That disconsolate look of yours is a disease and we can cure it. Prescription free, medicine furnished at popular prices.

THE RICHLAND VEHICLE CO.

Mansfield, Ohio

❖
Buggies
Surreys
Phaetons
Stanhopes
Runabouts



OUR No. 7-II. WINNER BUGGY



Please mention "The Hub" when you write.



In 15 seconds you can change our No. 110 Top Buggy to one of the handsomest Runabouts you ever saw. For this reason, we call it

2 IN 1

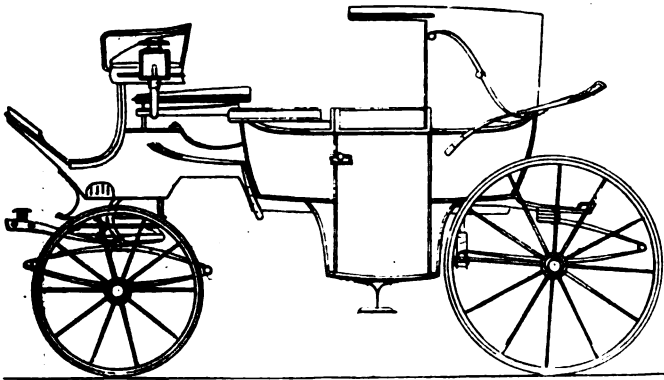
The Greatest Novelty and Quickest Seller on the market, and a money maker every time.

Sterling Buggy Co.

RUSHVILLE, IND.

Watch this page next month. ➤

Please mention "The Hub" when you write.



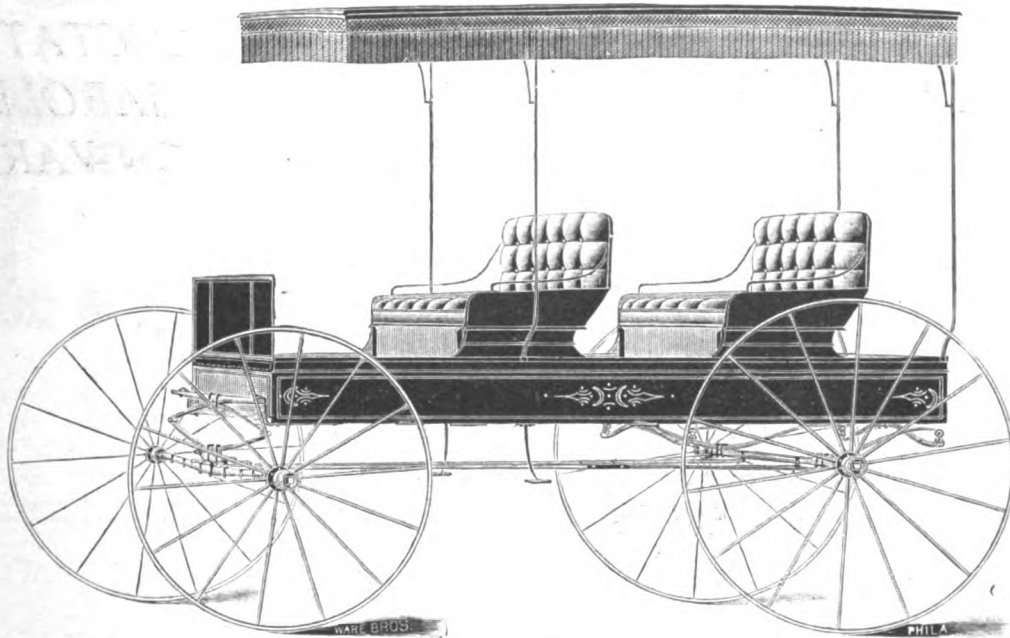
WHEN you want some up-to-date Landaus, Coaches, Broughams, Hansoms, Busses, Fine Cabriolets and Victorias, write us, we can make them good for you. Practical Coach Gears and Automobile Gears, with or without bodies, furnished at short notice.

*Forgings of all kinds made at short notice.
Please write for cuts and prices. Fine Bodies & Gear Woodwork furnished to the trade*

LEE J. AUBRY CARRIAGE CO.

NEW HAVEN,
CONN.

SPRING
WAGONS



ROAD
WAGONS

WAIT FOR OUR PRICES

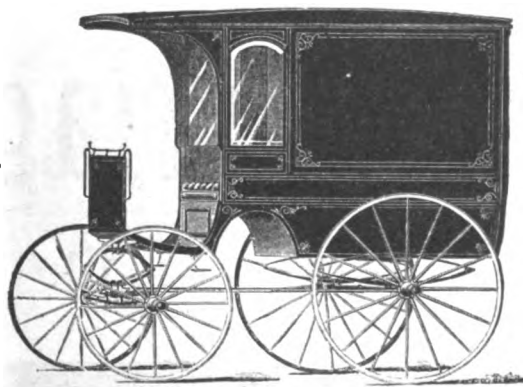
WE SHALL OFFER THE BEST VALUE IN SPRING WAGONS
ON THE MARKET THE COMING SEASON

GALION WAGON AND GEAR COMPANY

GALION, OHIO

**BEST ...
IN THE
MARKET**

THE QUALITY OF
OUR WORK IS
GUARANTEED



No. 365.

**WE BUILD HONEST
WAGONS
AT HONEST PRICES**

Write for Our Illustrated Form
N. Catalogue and Price List.

**THE ...
O. ARMLEDER CO.**

CINCINNATI, OHIO

Please mention "The Hub" when you write.

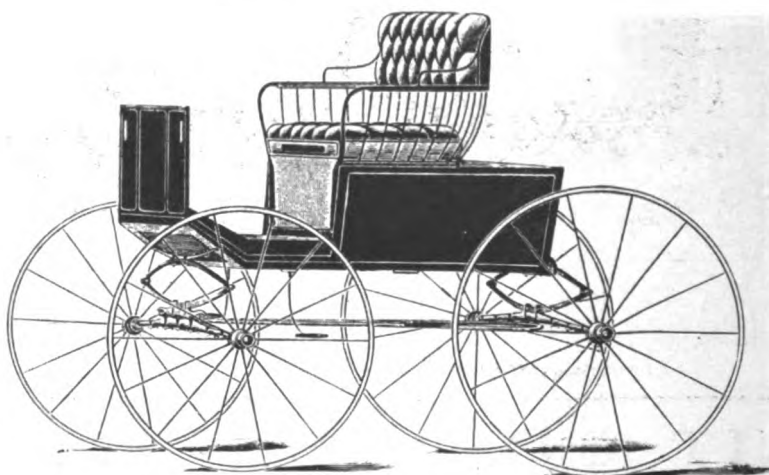
Keystone Carriage Co.'s THOROUGHBREDS

ALL WINNERS

CAPTOR
CONEY
ALLERTON

AXTELL
ARMOREL
STAR POINTER
DIRECT

Dictator
HAROLD H.
ONWARD



MAZETTE



Back The Winner



Keystone Carriage Co.

CINCINNATI, O.

Please mention "The Hub" when you write.

Are You With Us

**Always
Busy ..**

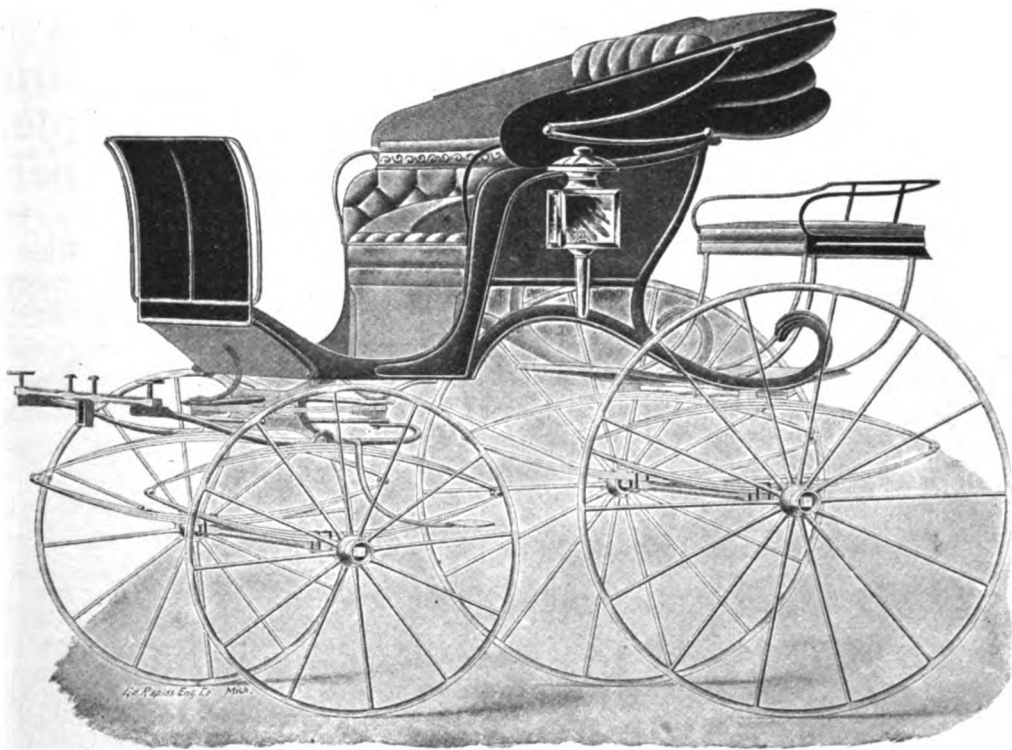


*Now Ready for 1902
Send for Prices.*



REX BUGGY CO.

Connerville, Indiana.



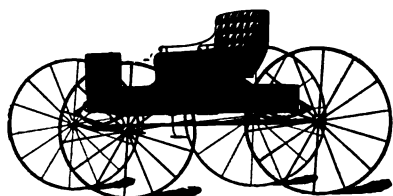
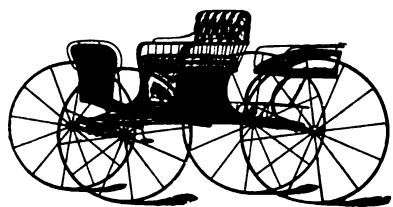
No. 126 A.
form Spider, with
ble seat. This
shows one of our
lar styles. We
many others that
interest builders
high-grade work.

logue on Application

— MILLER BROS. —

**BUILDERS OF HIGH-GRADE CARRIAGES IN THE WHITE,
AMESBURY, MASS.**

Please mention "The Hub" when you write.



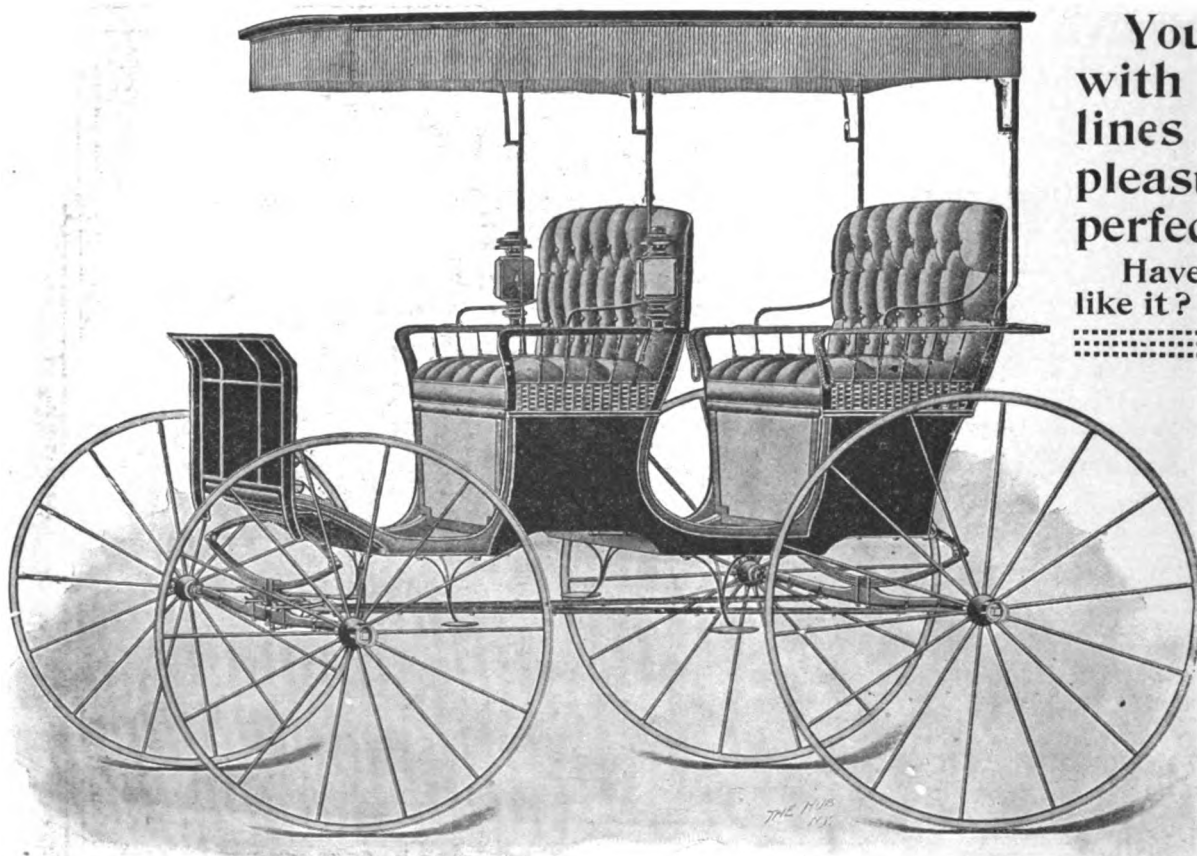
DO not forget that the H. H. BABCOCK COMPANY is showing many very tasty new things in their *1902 Catalogue*. Avail yourself of a catalogue, which is free. Place your orders early in order to get what you want.

H. H. BABCOCK COMPANY,

CARRIAGE BUILDERS,

WATERTOWN, N. Y.

BALTIMORE BRANCH,
23-25 West Fayette Street.



You must agree with us that the lines of this new pleasure rig are perfect. *o o o o*

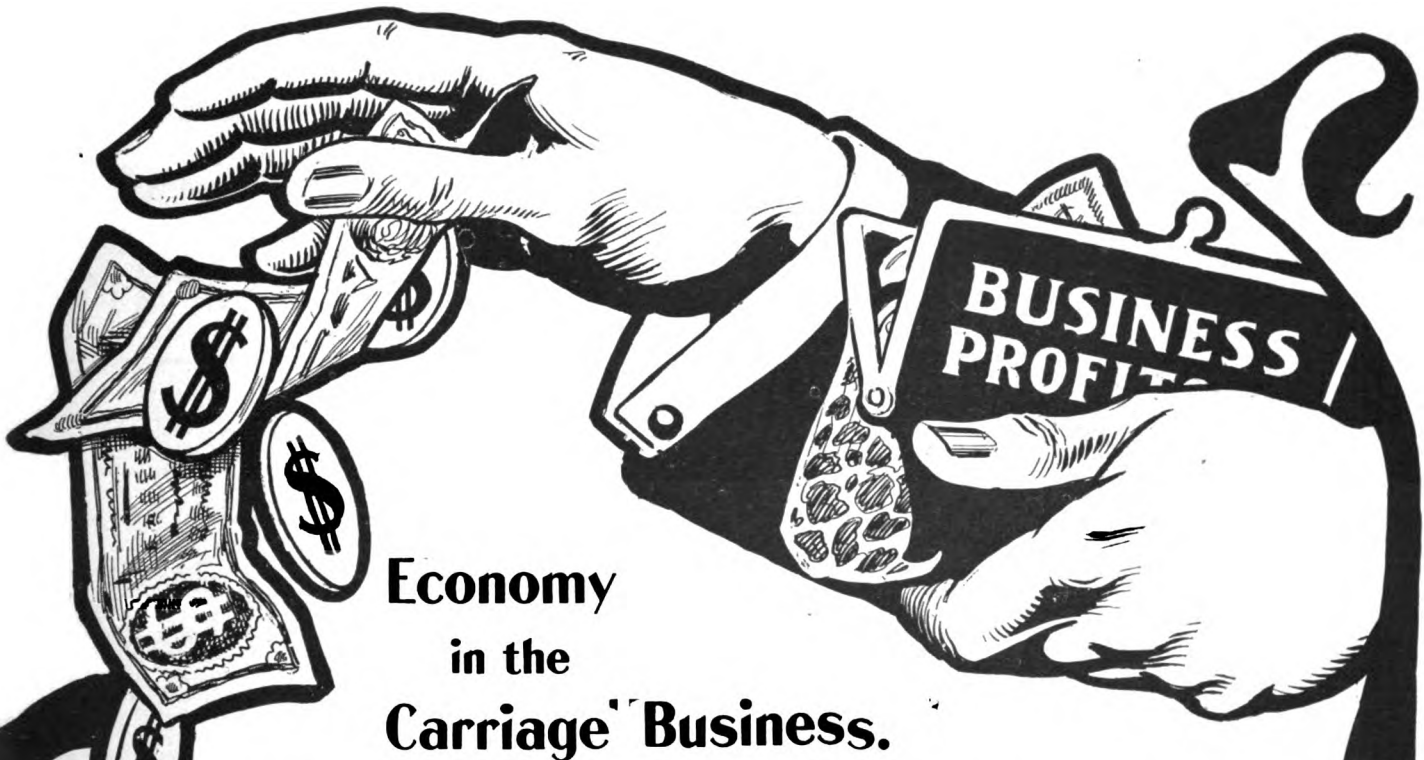
Have you seen anything like it?

It you haven't written for prices or placed your order, be quick before your neighbor gets it.

No. 140. LIGHT THREE-QUARTER SURREY.

Keator & Wells, Cortland, N.Y.

Please mention "The Hub" when you write.



Economy in the Carriage' Business.

Don't dodge this ; it is not a sermon on " saving your cigar money " neither is it a lecture on " how to do without an office boy ."

It is simply a statement of a few facts about the CARRIAGE business.

Most wholesale carriage builders are trying to build too many styles.

They don't do it because they want to, they do it because they think it really necessary in order to hold their trade.

They are subject to pressure from customers ; also from their travelers, to add styles and sizes. A traveler will write : " I can get Jones' trade if we will build a three spring phaeton, which is the job that has the call in this district ; wire me if I will accept order for ten jobs, this style."

In order to get Jones' trade the three spring phaeton is built ; and the already overcrowded line has still another style added to it.

This practice is continued until a carriage manufacturer cannot keep track of his stocks.

Neither can he fill orders with any degree of promptness.

A well-known carriage manufacturer recently received an order for one buggy—just an ordinary piano box Elliptic spring buggy—and out of over 100 finished jobs on the floor there was not one that would fill the specification.

This is not business economy.

A large number of styles cannot be economically manufactured in small quantities.

But you say, you must have a complete line.

Very well.

Manufacture a certain line, those styles which you can sell the most of.

Those styles which you have the best facilities for, and buy the balance in the white.

Buy from us the styles that we make.

And from other manufacturers of work in the white—the styles that they make.

Piece out your line in this way.

You'll find it profitable and satisfactory.

Try it and see.

The Buffalo Spring & Gear Co.,

■ BUFFALO, N. Y.



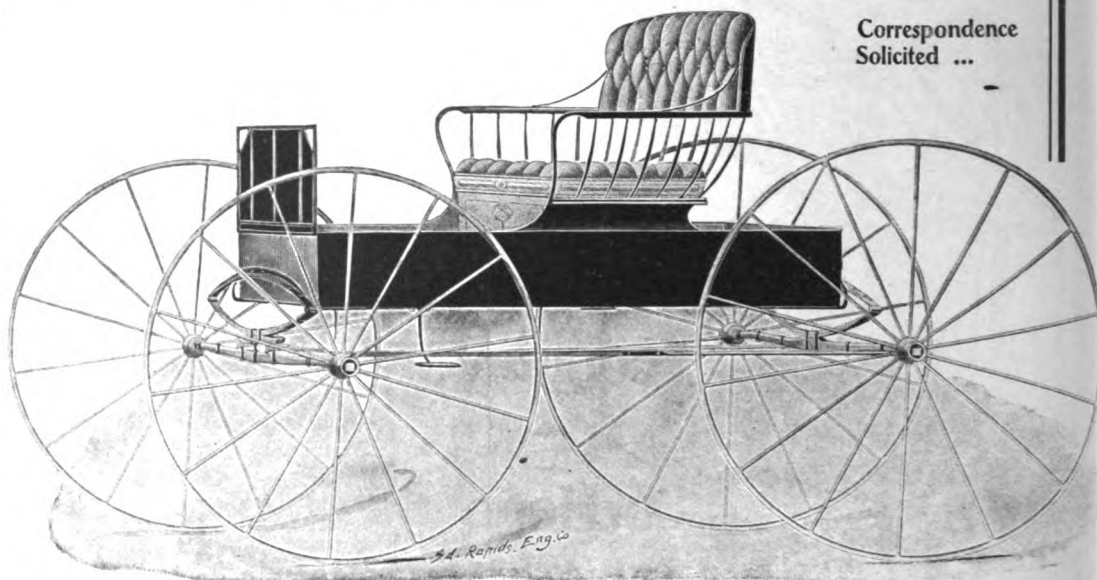
The Western Amesbury Line

Are Leaders in Style and are Money Makers

Every dealer
should handle
our.....

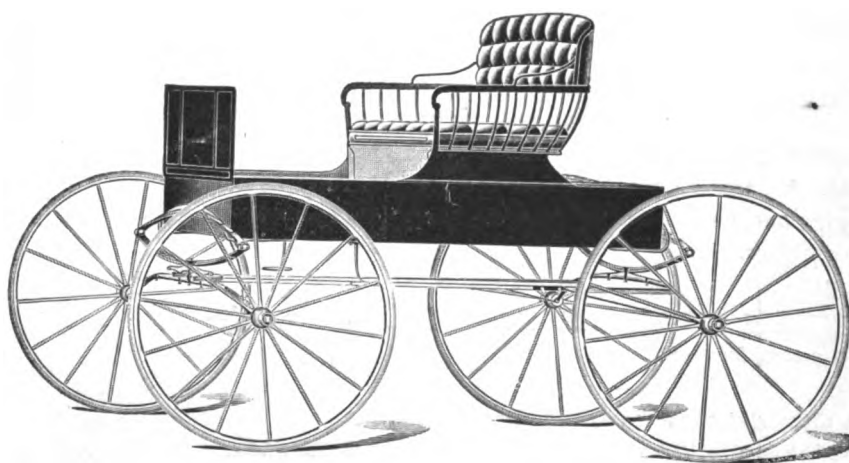
Surreys
Doctors' Stanhopes
Buggies
Road Wagons
Runabouts
Business Wagons
Spring Wagons
Etc.

Correspondence
Solicited ...



No. 11.

PONTIAC BUGGY CO., Pontiac, Mich.



No. 105—Woodbed Bike Wagon

SEAT—Bent spindle, 17½ x 27, or 29 inches on bottom.
BODY—22 or 25 x 56 inches long.
SPRING—Elliptic, open head.
AXLE—Dugout collar, self-oiling, for long distance use.
TRACK—4 feet 4 inches, 4 feet 6 inches, or 4 feet 8 inches.
WHEELS—Wood, 36 and 38 inches high.
STEPS—Rubber-covered.
COUPLINGS—Bull Dog.
DASH—Soft dash leather, grain front or full grain, solid or adjustable foot.
GEAR IRONS—All wrought.

We furnish above with or without seat fenders.

If trimmings are wanted, we furnish back and spring cushion of whipcord, or all-wool cloth, carpet, storm apron, whip-holder and shaft trimmings.

THIS is only one of our many specialties. We manufacture a full line of bike wagons, buggies, phaetons, surreys, etc., in the white ready to paint and trim. Also all styles of automobile bodies from special designs.

Write now for our new illustrated catalogue issued January 1st, 1902.

THE

King Spring Co.

BUFFALO, N. Y., U. S. A.

Sole Manufacturers of the Celebrated KING SPRINGS

Please mention "The Hub" when you write.

THE ANNUAL CHICAGO

Automobile Show

Under the auspices of the Chicago Automobile Club and
the National Association of Automobile Manufacturers.

Will be held at The Coliseum, **MARCH 1 to 8**

Morning sessions free to everyone engaged in the carriage trade.

The Central Passenger Association has granted AN EXCURSION RATE of one fare and a third for the round trip. The territory to which the rate applies is indicated by white space on the map herewith.

It will be the largest and most important trade show of Automobiles ever held in America.



A PARTIAL LIST OF EXHIBITORS

Chicago Motor Vehicle Co.
Milwaukee Automobile Co.
Warwick Cycle & Automobile Co.
Overman Automobile Co.
White Sewing Machine Co.
Fournier - Searchmont Automobile Co.
Elmore Mfg. Co.
Friedman Automobile Co.
Geneva Automobile Co.
Ralph Temple Co.
Haynes-Apperson Co.
Winton Motor Carriage Co.
Merkel Mfg. Co.
Ohio Automobile Co.
Badger Brass Mfg. Co.

Baker Motor Vehicle Co.
Knox Automobile Co.
20th Century Mfg. Co.
Locomobile Co. of America.
Veeder Mfg. Co.
American Bicycle Co.
De Dion-Bouton Motorette Co.
Foster Automobile Co.
Steamobile Co. of America.
Frank J. Glover.
T. B. Jeffery & Co.
Beardsley & Hubbs Mfg. Co.
Bachelle Automobile Co.
Brandenburg Bros.
National Vehicle Co.
B. F. Goodrich Co.

Olds Motor Works.
National Carbon Co.
U. S. Long Distance Automobile Co.
Goodyear Tire & Rubber Co.
Electric Vehicle Co.
G. & J. Tire Co.
Geo. N. Pierce Co.
P. J. Dasey Co.
K. F. Peterson.
Hartford Rubber Works Co.
Diamond Rubber Co.
Coe, Smith & Co.
Joseph Dixon Crucible Co.
Spaulding Automobile & Motor Co.
Buffalo Electric Carriage Co.
Porter Battery Co.

We publish a weekly bulletin detailing the progress of arrangements for the show.
If interested send your name and a copy will be sent you without charge. ♡ ♡

SAMUEL A. MILES, Manager, 324 Dearborn Street, CHICAGO.



MODEL E—PRICE, \$900.00

Stearns

STEAM CARRIAGES.

Eight Models New Features

Agents Wanted

- Model A—Runabout.
- Model B—Dos-a-Dos.
- Model C—Delivery Wagon.
- Model D—Buggy Top Runabout.
- Model E—Victoria " "
- Model F—Surrey.
- Model G—Touring Car.
- Model H—Station Wagon.

Immediate Delivery
Regular Equipment

Low Water Alarm.
Fire Controlled from Seat.
Pilot Light.
Engine, encased, runs in oil.

Feed Water Regulator.
Air Pump on Engine.
Gasoline Generator.
Double Action Brake

Stearns STEAM CARRIAGE CO.
SYRACUSE NEW YORK



THE popularity of the "Oldsmobile" has become so marked that we take this opportunity to notify all imitators and infringers that, while our motor is covered by our engine and designed patents, we have a number of applications for patents upon the mechanical improvements in our device, which are allowed, covering nearly every part of the machine.

ILLUSTRATED CATALOG ON APPLICATION.

Olds Motor Works,

53 CONCORD AVENUE,
DETROIT, MICHIGAN.

"Toledo"

STEAM CARRIAGES



**STRONG
SAFE
DURABLE**

**Easy to
Operate**

Price, \$900

No better steam vehicle could be produced than is now represented in the 1902 Toledo.

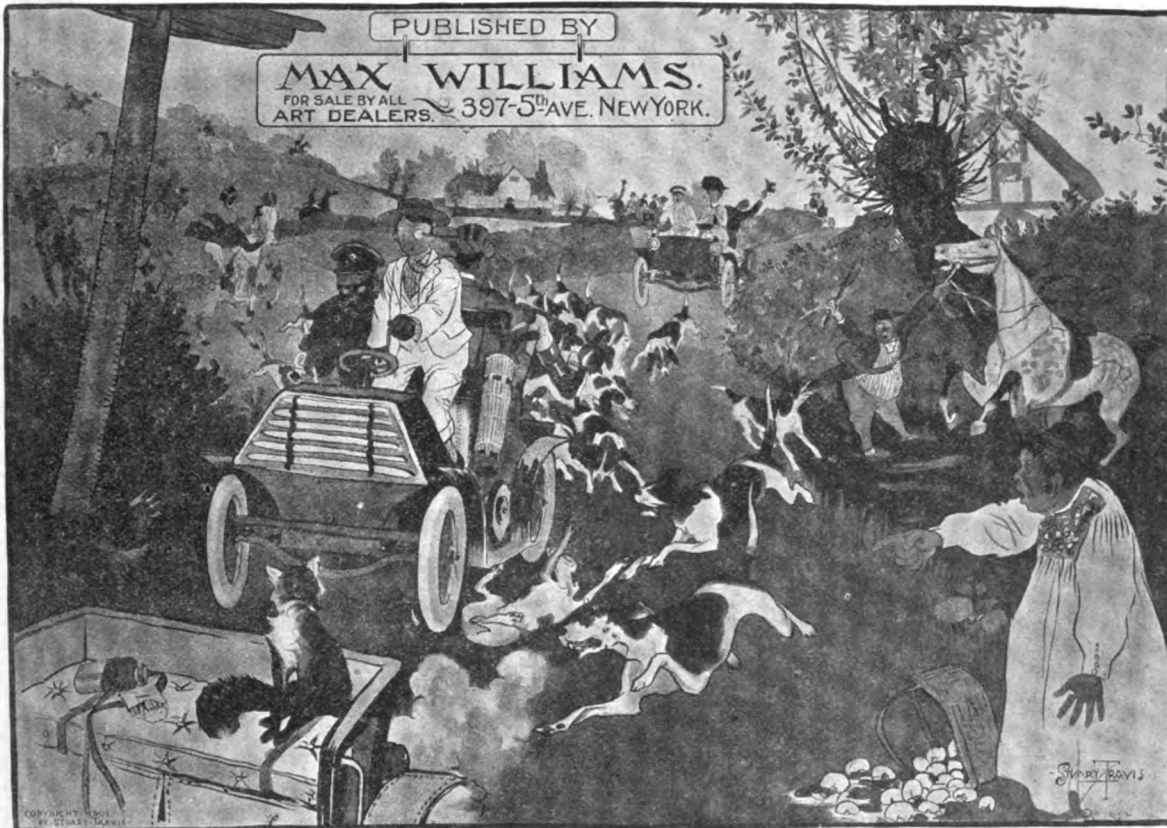
Good territory still open for live agents. Write for terms and catalogue.

**International Motor Car Co.
Automobile Department**

TOLEDO, OHIO

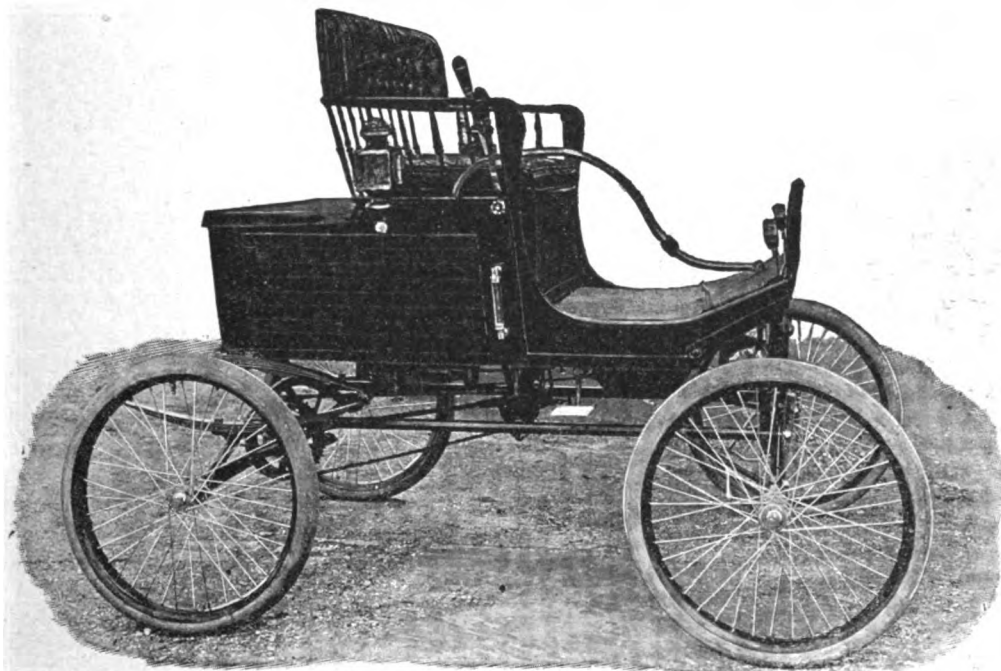
N. Y. BRANCH, 91 FIFTH AVENUE

Please mention "The Hub" when you write.



One of a Series of 4 Pictures by Stuart Travis.
Facsimile in Colors. Price per set, \$15.00.

"The Interrupted Hunt."



IN recognition of the importance of the industry established by The "Mobile" Company of America at Kingsland-Point-on-the-Hudson, the New York Central & Hudson River Railroad has established a station at the factory of The "Mobile" Company with a service of twenty-five trains a day.

The original Philipse Manor, two hundred and twenty years old, still stands on the company's property, and the railroad company has appropriately, in view of its historical and literary associations, given this name to the station. The run from the Grand Central Station in New York is one hour. The manor house and old mill and Sleepy Hollow are part of the company's property, connected by the Headless Horseman's Bridge. The old Dutch Church, and Washington Irving's grave and the monument marking the spot where André was captured, are in the immediate vicinity. When you visit New York, you will find a trip to the factory of

THE "MOBILE" COMPANY OF AMERICA

quite worth a half day's outing. Kingsland Point itself is considered to be the most beautiful section of the Hudson. The visitor is looked after by The "Mobile" Company's corps of demonstrators, taken for a ride in a horseless carriage, and shown all the different processes which enter into the fifteen departments required to manufacture a horseless carriage. He may inspect both quality of material and workmanship, see the new carriages tested as they are taken from the works one after another, and have every opportunity to satisfy himself of the excellence of the carriage in every particular. Price, \$750 Complete.

THE "MOBILE" COMPANY OF AMERICA, Philipse Manor Station, Tarrytown, N. Y.

Please mention "The Hub" when you write.

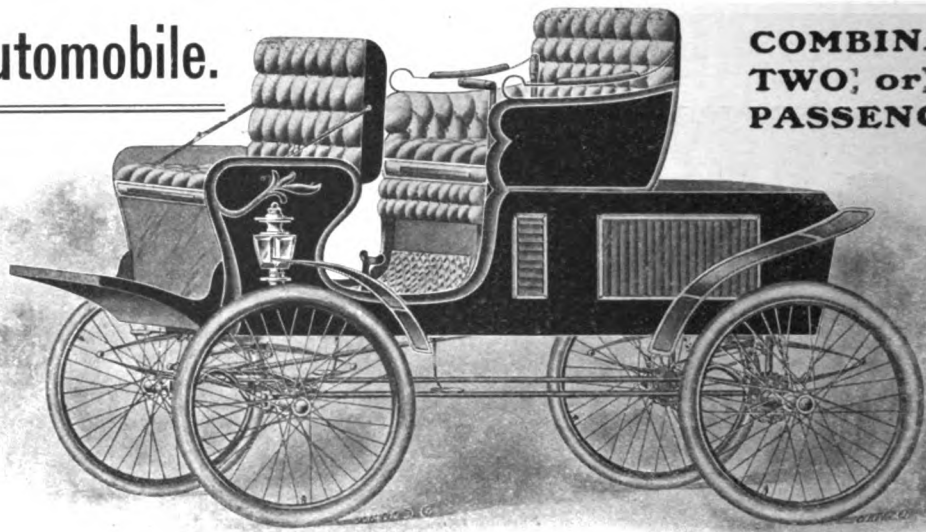
The Darling Automobile.

Built for Service.

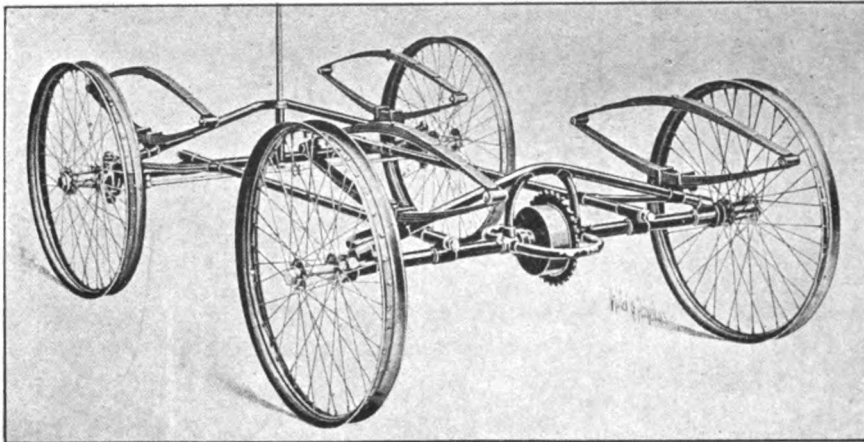
Write for our complete
Catalogue.

THE
BEARDSLEY
& HUBBS
MFG. CO.

SHELBY, OHIO.



COMBINATION
TWO, or, FOUR
PASSENGER.

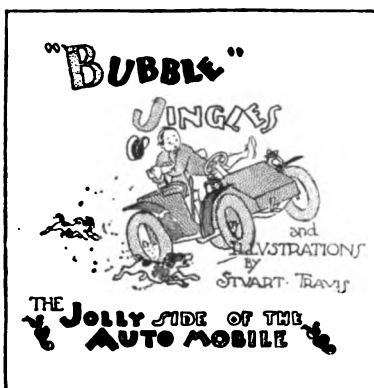


Complete Running Gear No. 3.

New and original idea. Reach rods are attached to lower part of frame instead of the upper arch, making a very strong running gear.

Write for further particulars and price.

Shaeffer, Bunce & Co.
LOCKPORT, N. Y.



DID YOU SEE US AT THE AUTOMOBILE SHOW ?

"Bubble" Jingles: The Jolly Side of the Automobile

By STUART TRAVIS.

Read what the papers have said of this attractive book:

TOWN TOPICS:— " " should certainly appeal to those who are posted on the automobile . . . and Messrs. Rohde & Haskins have shown themselves masters in the art of book production.

NEW YORK EVENING POST:—The automobile has brought in a brand-new lot of mishaps, and consequently a new resource for the humorous. Mr. Stuart Travis has been quick to grasp this opportunity . . . the first comer in the new field.

LITERARY SUPPLEMENT NEW YORK TIMES:—Vividly portrays the vagaries and vicissitudes of the auto-machine and the man who auto-know-better. The illustrations invest the automobile with jollity and action, as instinct with life as a field in full cry.

LITERARY SUPPLEMENT NEW YORK JOURNAL:—Is one of the most attractive books of the season. Uniquely bound.

NEW YORK PRESS:—A literary novelty for the holiday trade.

BOOKSELLER, NEWSDEALER & STATIONER:—Mr. Travis does for the Automobile what Caldecott did for the horse in his famous country scenes.

PHILADELPHIA PRESS:—While studying abroad, Mr. Travis absorbed much of the English country spirit which pervades the work of Caldecott.

This book met with instantaneous success all over the country. It bears the unique distinction of being the first in the field, and Mr. Travis' long experience and success as an artist have peculiarly fitted him for the work. To read this book is to laugh, and every devotee of the new sport will recognize his own experiences, expertly illuminated in verse and picture.

Handsomely bound. Size, small quarto, illustrations in color. Artistic cover and ornamental wrapper. Price, \$1.25. For sale by all dealers or sent postpaid on receipt of price by

ROHDE & HASKINS, NEW YORK.

Automobile Gasoline Motors.



Bicycles.

Also Motors for Bicycles
and Launches.

Castings and Working Drawings.

Lowell Model Co.,

P. O. BOX 292,

Lowell, Mass.

NAME PLATES for CARRIAGES and AUTOMOBILES.

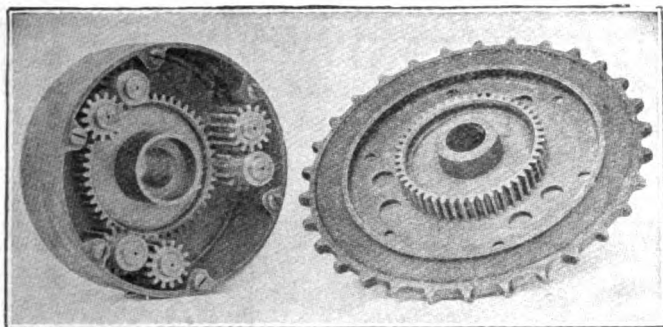


This design any lettering, at \$5 per 100 or \$3 per 50. Oxidized Silver or Nickel Plat. Better rates on large orders. All plates heavy brass, high relief, heavy plate, extra finish.

N. C. WALTER & SONS, 194 William St., New York.

**THE HUB Circulates All Over
the World.**

Please mention "The Hub" when you write.



Spurs Speak for Themselves

At the New York Show in 1900 only *three* makes of automobiles had spur equalizing gears.

This year 45 makes were exhibited, 23 of which were equipped with spur differentials.

Others decided at the show to change to spurs.

Among those exhibited using BROWN-LIPE SPUR DIFFERENTIALS, were the following:—

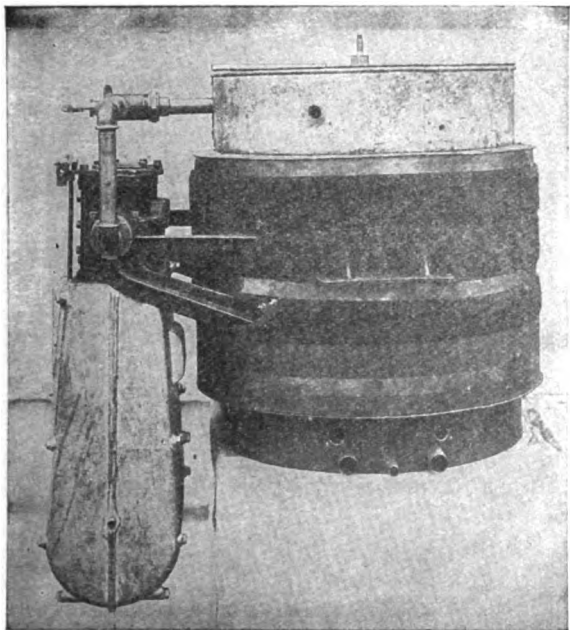
THE STEAMOBILE CO.
FOSTER AUTO. MFG. CO.
WARWICK CYCLE & AUTO. CO.
MILWAUKEE AUTO. CO.
B. V. COVERT & Co. (running gears).
DAYTON MOTOR VEHICLE CO. (running gears).

STEARNS STEAM CARRIAGE CO.
REMINGTON AUTO. & MOTOR CO.
ELMORE MFG. CO.
BADGER BRASS MFG. CO.
CREST MFG. CO.
D. B. SMITH & Co.
THE AUTOCAR CO. (one vehicle).

Many others not represented at the show are using our spur equalizing gears. This speaks for itself. Spurs have proven more efficient and durable. They won't spread. Cheaper in every way.

We have six models to select from and we make special models to order if stock sizes won't meet requirements. We introduced spur equalizing gears in this country.

BROWN-LIPE GEAR CO., 212 So. Geddes Street, SYRACUSE, N. Y.



The above cut illustrates our oil encased engine suspended from bracket fastened to boiler. The engine being hung flexibly to boiler to allow chain adjustment. Burner is our three part construction with pilot light. We furnish this style in two sizes for heavy vehicles, also smaller sizes of boiler and engine for light carriages.

ENGINES, BOILERS, BURNERS AND FITTINGS.
HIGH GRADE VEHICLES BUILT TO ORDER.

EDWARD S. CLARK,
272-278 Freeport Street, Harrison Square,
Long Distance Telephone Connections. **BOSTON, MASS.**

Acme Supply Co.

Formerly

Acme Gasoline Engine Company,

Manufacturers of

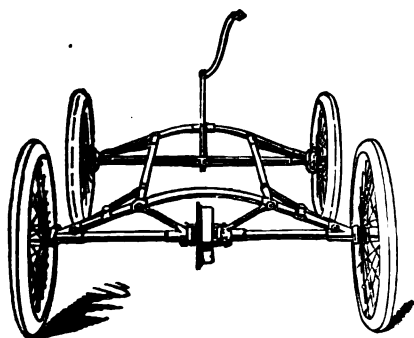
Gasoline Engines.

Also special engines for carriage-men and others to construct their own vehicles.

726 No. Vandeventer Ave.,

ST. LOUIS, MO.

Automobile Running Gears.



We make a specialty of gears suitable for Gas, Steam or Electric power. Our gears have been in use with good results to buyers. They are adapted for all classes of road work without straining.

Side or Centre Steering.

SIMPLICITY, SPEED, SERVICE.
READING AUTOMOBILE & GEAR CO.,

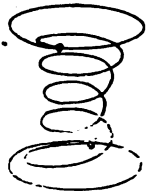
10th and Exeter Streets. **READING, PA.**

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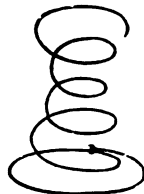
METAL STAMPING CO. 468-472 West Broadway NEW YORK

Manufacturers of

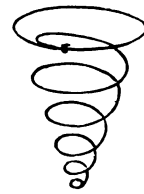
BACK AND SEAT SPRINGS.



Regular Pattern.



Special Pattern.



Amesbury Pattern.

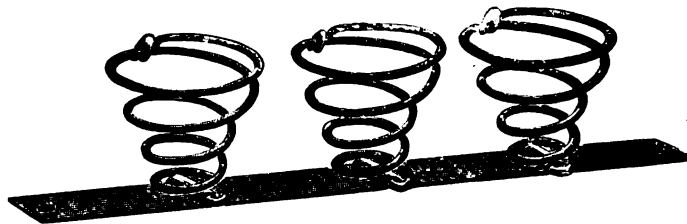
All Sizes and Patterns.

Any Height.

Japanned and Coppered.

Prices Lower than any other Manufacturer.

**Our New
Spring
Cushion**



TRY OUR WIRE BOOT STRAPS

Furnished exactly as shown in illustration, all ready for attaching to wood frame. Is cheaper and applied with less labor than similar device.

TRY THEM.

Have Replaced Rubber Entirely.



We GUARANTEE them not to set.

Send for our new catalogue, full of novelties of interest to trimmer and blacksmith

American Harness and Saddlery Directory EIGHTH YEAR.

A MERICAN HARNESS AND SADDLERY DIRFCTORY FOR 1902 contains many valuable features and is an up-to-date twentieth century publication. This directory has **always** been the **standard**, and every edition has been an advance in accuracy and usefulness over the preceding issue.

The 1902 edition has an **arrangement** of the **wholesale** and **jobbing trade** that makes it very convenient for those who wish to separate *association jobbers* from those not at present so recognized.

A **new part** has been added that will be found a very serviceable list of **dealers in harness**, as distinguished from *retail harness* manufacturers. To many who solicit the vehicle, implement and hardware trade, as well as department stores, this will prove of great convenience. These trades are handling harness and horse goods in increasing volume yearly, and such a list is a distinct advantage to the trade.

The Buyer's Guide (Part III. of the Directory) has always been a valuable feature. This is an alphabetical classification of all the many and various articles made to sell to the trade from Axle Grease, under "A," down to and including Wool Saddle Linings under "W." and the names and addresses of those making the various articles.

As the export trade is now inviting attention, a list of exporters of saddlery is also published.

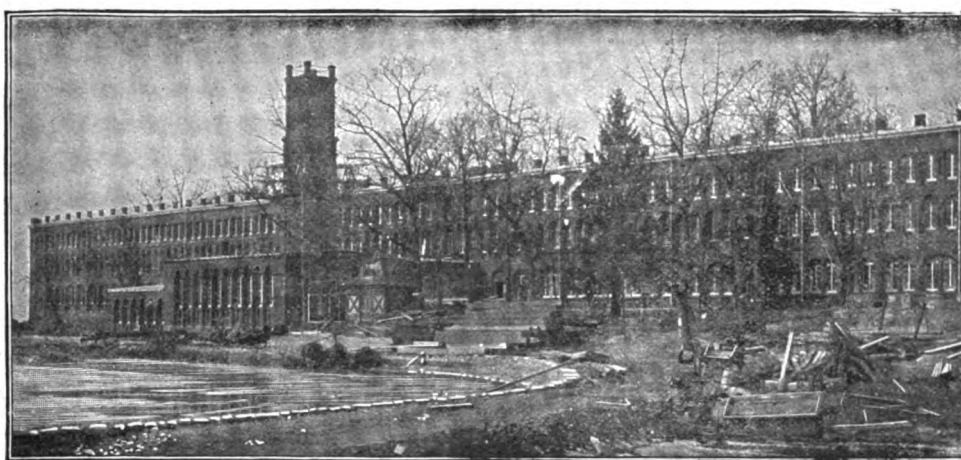
The body and the bulk of the Directory is, of course, made up of **the retail harness makers of the country**. They are conveniently arranged under State, Town and County, in the larger cities giving the street number of the occupant's place of business. Those whose rating (approximate) is over \$1,000, are marked so as to be easily distinguished.

Price \$2.00, postage prepaid.

Trade News Publishing Company,

24-26 MURRAY STREET, NEW YORK.

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FACTORY OF THE MOBILE COMPANY OF AMERICA.—VIEW LOOKING SOUTH.

THE "MOBILE" A CARRIAGE FOR EVERY-DAY USE.

ON June 10th, four "Mobiles" started in the middle of the afternoon from the factory of The Mobile Company of America at Kingsland-Point-on-the-Hudson and ran to West Point, reaching the ferry at Garrisons in time for the 5:15 boat. Two hours and a half were spent in running about the Military Academy roads, then, after dinner, the four carriages started home by moonlight. The road from Kingsland Point to West Point is hilly, with many steep gradients scattered over its length; but from the State Camp at Peekskill through the Highlands of the Hudson to West Point occur long climbs and very steep and rough roads. The distance traveled was approximately, including the running at the Academy grounds, sixty-five miles. Not a delay or accident of any kind occurred; not a moment's worry to anyone of the eight people who made the journey. The "Mobiles" were in as good condition at the end as at the start—not one, but the entire four—and one of them had come up from New York to Kingsland Point before starting for West Point.

This gives an idea of what the "Mobile" is—a splendid piece of machinery, satisfactory in all its parts, of the best quality and workmanship throughout. Price, \$750. All visitors can inspect every department of the manufacture of "Mobiles." Twenty-five trains stop at Philipse Manor, the station on the company's grounds.

For information regarding "Mobiles" address

THE "MOBILE" COMPANY OF AMERICA,

PHILIPSE MANOR STATION, TARRYTOWN-ON-THE HUDSON, N. Y.

Waverley

ELECTRIC VEHICLES



Are the best vehicles built to-day in the electric class.

Good territory still open for progressive dealers.

Price, \$850

Send for Catalogue.

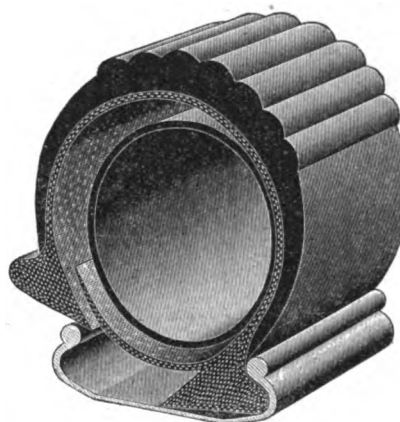
International Motor Car Co.

Waverley Automobile Dept.

INDIANAPOLIS, IND.

N. Y. BRANCH, 91 FIFTH AVENUE

G & J TIRES



Detachable Double Tube

FASTEST AND STRONGEST
AUTOMOBILE TIRE

Any tire may puncture. You can always repair a G & J Tire SURE.

PRICES UPON REQUEST

G & J TIRE CO.

Indianapolis, Ind.

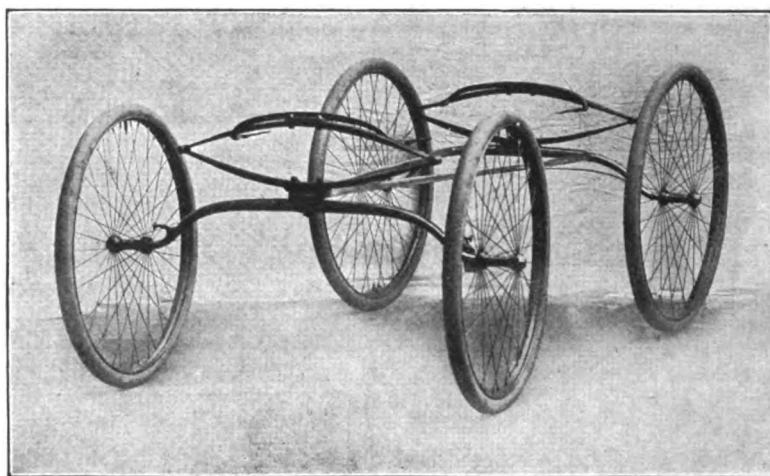
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Made of High-grade Steel Tubing.

Sold Only in the Grey.

Made in two patterns
—end spring and
side bar.



Fitted with standard
size wheels, 34 and 36
inches; larger sizes
to order.

LIGHTER by 50 per cent. than
solid gears.

STRONGER for weight of metal used
than solid gears.

COSTS NO MORE than the best
forged gears.

Automobile & Cycle Parts Co.

SMITH STAMPINGS FACTORY,

MILWAUKEE, WIS.

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The Hub

(THE HUB NEWS.)

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J. HENRY KLUNE, *Eastern Representative.*

E. R. SHAW, *V.-P. and Western Representative.*

THE HUB is published monthly in the interests of employers and workmen connected with the manufacture of Carriages, Wagons, Sleighs, Automobiles and the Accessory trades, and also in the interests of Dealers.

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For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for new advertisements must be received by the 25th of the preceding month, and requests to alter or discontinue advertisements must be received before the 12th day of the preceding month to insure attention in the following number. All communications must be accompanied by the full name and address of writer.

FOREIGN REPRESENTATIVES.

FRANCE—L. Dupont, publisher of *Le Guide du Carrossier*, 78 Rue Boissiere, Paris. Subscription price, 15 francs, postpaid.

GERMANY.—Gustave Miesen, Bonn a. Rh. Subscription price, 12 marks, postpaid.

The Year 1901.

A REVIEW of the industrial movements in the United States during the year just closed reveals a state of prosperity that is almost without parallel in the history of any nation. At the opening of the year many clear-headed, far-seeing business men expressed apprehension that the great prosperity that so marked the year 1900 would not be maintained, but their fear, fortunately, was not realized, and the year 1901 closed another twelve months of marvelous business, and proved the prosperity of the country to be on a firm foundation. The severe trials of the year evidenced more than anything else could how solid the ground upon which the country stood. The occurrence of three events, one the great steel strike which threatened serious disaster to our

manufacturing industries. The second, the murder of President McKinley shocked the political world and caused a halt in every department of political and industrial life, but ere the martyr's remains were consigned to their final resting place the fear of pending evil had passed, and National life assumed its wonted activity. The third event was the failure of the corn crop, caused by drouth, and by which the crop was reduced to about one-half its quantity, as compared with the year before. Either of these events would have been enough to have checked progress had not we been upon a solid basis, while the three combined would have brought all to a standstill under less substantial conditions, but as it was there was no shock, except to the hearts of a people who loved the murdered executive and their country. In all of the good the carriage industry has had its full share. It became evident early in the year that the demand would equal the supply, and manufacturers started their works early and to their full capacity, to keep their customers supplied, and until midsummer there was no cessation in sales, and dealers reaped a goodly harvest, owing to the fact of their being able to obtain outside prices, while manufacturers made no change. This condition applied alike to the highest grade of carriages built, as well as to the popular high grade and to the cheap vehicles. Trade kept up strong until July, when sales by dealers began to fall off, but the supply in the hands of manufacturers was too short to permit of their reducing production, further than to cease running on extra time. The lockout by many of the builders in Cincinnati on August 18th, as the result of demands on the part of the workmen, which manufacturers could not grant, proved to be the worst labor trouble that the carriage trade has experienced in many years, and interfered largely with the output of Cincinnati, but less than it would had it occurred at a time when manufacturers were pressed to fill orders. The loss to Cincinnati was a gain to some manufacturers elsewhere, and in all probability there were as many carriages built as there would have been had the strike not occurred; but Cincinnati builders were the losers. Nothing radically new has appeared during the year. There were some changes in styles of fine work. The leading builders, aiming to produce the plainest possible, the builders of cheap lines confined their product very largely to standard vehicles in their class, leaving novelties to the builders of "high grade" carriages, the leading novelty being the cut-under square box buggy. Many of the designs in other styles were good, a few sufficiently so to live through another year, while the freaks, of which there were far too many, will give place to others of the same family. In the manufacturing department there has been but little change. There was no pressure during the Fall, neither was there any forced idleness, and the closing months of the year found all well employed, and in some cases there was marked activity. Failures among manufacturers were few and none were for heavy

losses, and there was a marked falling off among dealers, and the last reports show collections to have been more satisfactory than usual. The favorable conditions at the closing bids fair to being maintained, as manufacturers of materials, as well as carriage builders, have a satisfactory line of orders booked, and all reports from dealers are favorable. The sleigh trade has been much better than it was during the closing months of 1900, but the absence of snow in and around New York City has left the dealers in sleighs in those localities without customers. Summing up the year as a whole, it has been one of the most prosperous ever had in the carriage trade. The product was increased and prices were stable, and at its close the outlook is bright.



National Reciprocity Convention.

THE Reciprocity Convention that met at Washington, D. C., on Nov. 19th, was attended by about two hundred delegates. The convention was held in pursuance of a call by Theodore S. Search, of Philadelphia, the object being to test the feeling of manufacturers regarding reciprocity. The three days' sessions resulted in the adoption of a series of preambles and resolutions, which are published on another page, the temper of the meeting being adverse to anything like general reciprocity treaties with other manufacturing nations. All realized that the subject was one that required cool thought and careful action. There was a feeling that reciprocity might be applied to some lines, and with countries who furnish raw materials, but there was a well defined feeling that to make a general attack upon the present tariff, through reciprocity, would lead to an agitation that would demoralize trade, and give aid only to those countries that find this country the great market for their manufactured products. Of course the theorists, free traders and pessimists see trouble ahead, unless reciprocity can be made a feature of future legislation. The theorists love the term; to them it is the very essence of brotherly love; and its adoption would convert the world into a mutual admiration society. The free trader sees in it an entering wedge which he hopes may be driven so far in, in time, that there will be no tariff on foreign products, and the United States Custom House will be abolished. To the pessimist the present prosperity is but the bright sunshine before the storm; just now the combination of capital, in industrial pursuits, is the target, and he hopes that reciprocity may cause a dissolution of these great interests. He would destroy the present to make a future that would be just as distasteful as is the present. All these parties make light of the present prosperity of the country, and attribute it to chance, rather than to any real cause, and they argue that their individual views must be the regulators before real prosperity can come to us. They fear prosperity, and are happiest when they see a falling off in products, a failure of crops, and a decline in the prices of stocks, and are ready with "I told you so" whenever adverse conditions are apparent; but the great majority of our people feel otherwise, and would welcome any legislative action that will correct existing evils without creating greater. They would welcome reciprocity where the advantages are equal, but not a reciprocity that would flood our markets with products of those countries that take nothing from us except agricultural products, and those only through compulsion due to short crops. Reciprocity would not cause them to take a pound of grain or meat more than they now take, while it would open our markets to their goods, greatly to the detriment of our manufacturers and workmen. The action of the convention has opened the mouths of the calamity crowd, and they are again ventilating the wrongs of the agricul-

turalists and the terrible effects of taxation on the workers, and that too in the face of the fact that at no time in the history of our people was the conditions so favorable to both as at the present, hoping thus to develop a sentiment in favor of their hobby. There are defects in the present tariff, but these cannot be corrected by reciprocity, but they may be by legislation, and because we believe in going slowly we approve of the resolutions passed by the convention.



Strikes and Lockouts.

WE publish elsewhere in this month's HUB a somewhat lengthy account of a meeting of capitalists, labor leaders and prominent men in other walks of life; a meeting which, we trust, will be the means eventually of leading to effecting closer relationship between employers and employed, and in the end doing away with strikes and lockouts, which are alike injurious to the capitalist and the man who toils. We are not so optimistic as to believe that the work proposed can be accomplished by the organization that was effected at that meeting, but we do believe that the action taken will result in much good and that eventually there may grow out from it a means whereby the workers of America and the capitalists who employ that labor may meet upon a more common ground than heretofore and that an honest recognition of the rights of each will lead to the betterment of both. The American workman yields to none in intelligence and honesty, his education has been in a liberal school, he realizes the position that he holds in the election of rulers and the shaping of laws. He is taught, by precept and example, to know that the entire field is open to him and that he starts in the race of life unhampered by oppressive laws, or hindered by blind prejudice. No barriers are erected between him and the road to success that is not raised against any other man. All may not succeed, but the failure is not due to oppressive laws. As a worker, nowhere else does he get so much in return for his toil. Armed with this knowledge, he is the better prepared to intelligently assert his rights and to avoid encroaching upon the rights of others, and is therefore better qualified to act in concert in his, and capital's endeavor to protect, and advance mutual interests. The capitalists of this country who are engaged in the manufacturing industries are, in the main, men who worked as wage earners early in life, and by dint of special merit, in one or another direction, became employers. They have not forgotten their early struggles, and are therefore better prepared to deal with workers than men can be who have never known what toil meant, or the deprivations incident to small earnings, and it is they who constitute the element that must treat with labor. The selection of a third element we think a happy omen, as this can act independently, not being directly interested in the controversy and can therefore act without the prejudice that must, to a certain extent, bias the views of the others, and it is because of this that we are hopeful of much good from the workings of the Industrial Department of the National Civic Federation.



The Automobile Situation.

THE year just closed has been one of marked activity in the automobile world, but it would test the ability of twelve men "good and true" to decide whether real progress had been made. More are used than were a year ago, but, with the exception of the great racing machines, the bulk are of the light two-passenger type. Financially the year has been unsatisfactory, and the closing out of some companies, and the consolidation of others shows an unsatisfactory condition in this respect. The few companies that have made a fair showing have not been loaded down with stocks, and have devoted more attention to the manufacture and sale of reliable vehicles than they have to the stock market. The season's meets, races, shows, etc., have brought out many vehicles,

and thus have increased the interest in automobiling. New clubs have been formed and much has been done toward the establishment of rules that are to govern runs, racing, etc. The promised reduction of prices has not been realized, nor is it likely to be. Strength and durability are necessary, and these cannot be had, except by the use of good material and the requisite amount. Those who fully realize these facts have advanced the price of the finished vehicle, and buyers are the gainers thereby. Something has been done in the way of improving styles, and many of the vehicles now in use are pleasing in form and comfortable. Brighter colors have been used than heretofore, and the appearance of the machines have been beautified. The general report is that the outlook for the coming year is more favorable than at any previous time. More is being done, and less promised; in fact the builders are getting down from their high ideas and are talking sense and are depending more upon the merits of their machines than upon fabulous statements of their merits. Then too there are movements toward enlisting the services of vehicle dealers, as sellers of automobiles, thus putting the machines in the hands of parties who are familiar with the users of vehicles, and who are more competent to make repairs than men can be who know nothing of road vehicles. At the same time they are making friends of men who as enemies could retard the advance of the automobile. Competition is sharpened, but it now moves in the direction of bettering the vehicles, rather than in marketing at low prices. There is a gradual wearing away of the antagonism that grew from running the machines on public roads where horses predominate, and is now confined mainly to opposing the racers that rush over the roads at forty to fifty miles an hour, and we may reasonably expect automobilists to use more discretion in selecting roads on which to make the breakneck runs than they have in the past. Taking a look at the situation from all standpoints we are inclined to believe that the outlook for automobiles is better than ever before, and that in time they will share with the horse in popularity, but the horse will remain with us for all time to come.



Our Eastern Representative.

J. HENRY KLUNE will represent us throughout the Eastern and Middle States, in the interest of THE HUB, HARNESS and HARNESS DIRECTORY. Mr. Klune was formerly associated with this company and is well known throughout the trade, and we bespeak for him the courtesy so freely given to our representatives in the past.

TRADE NEWS PUBLISHING CO.

Description of Latest Styles.

SPEED WAGON.

Scale, $\frac{5}{8}$ in. to the ft.

(See Fashion Plate No. 540.)

FASHION Plate No. 540 shows another of the light wagons that have been brought out by the building of the New York Speedway. The body is of the simplest character, and is hung on side bars and cross springs. The body is narrow and everything is done that is possible to reduce weight without imperiling strength. The seat posts are securely braced by irons at the seat and sills. The gear is tubular.

Dimensions of Woodwork.—Body, width of seat outside, 28 in.; width of body, outside, 23 in. Wheels, wire; height, front and rear, 28 in. Distance between center of axles, 61 in.

Dimensions of Ironwork.—Springs, 26 in. long between centers of heads, with $3\frac{1}{2}$ in. set; width of steel, $1\frac{1}{4}$ in.; number of plates, 3; thickness, No. 3 steel. Tires, $1\frac{1}{4}$ in., pneumatic. Track, outside, 4 ft. 8 in.

Painting.—Body and gear, black; no striping. Trimming, green cloth; driver's seat plain. Finish, black.

LADIES' PHAETON.

Scale, $\frac{1}{2}$ in. to the ft.

(See Fashion Plate No. 541.)

FASHION Plate No. 541 illustrates one of the most attractive of the ladies' phaetons that were seen at the New York Horse Show. As will be noticed the body is hung very low, the front wheels being lower than those usually seen on this class of vehicle. The dash is high and the lower end of the outer panel is bent up to the line of the bottom of the body. Back of the heel bar there is no bottom board, except the platform to the rumble, which, together with the rumble, can be removed by the loosening of a few securing bolts. A wing acts as a mud guard over the rear wheel.

Dimensions of Woodwork.—Body, width across at front of arm-rail, outside, 47 in.; across bottom of wing pillar, 33 in.; at top back corner, 41 in.; at toe, 34 in. Footman's seat, 32 in. wide. Wheels, wood hub; height, including tires, front, 28 in.; rear, 44 in. Hubs, length, 7 in.; diam. at center, 6 and $6\frac{1}{4}$ in.; front end, $3\frac{3}{4}$ in.; back end, $4\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ and 1 9-16 in.; number of spokes, 8 and 12. Depth of rims, $1\frac{1}{2}$ in.; tread of rims, $1\frac{3}{8}$ in. Depth of bands, front, 2 in.; back, $\frac{7}{8}$ in. Distance between center of axles, 64 in.

Dimensions of Ironwork.—Springs, front, 34 in. long between centers of heads, with $6\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{1}{2}$ in.; number of plates, 3; thickness, No. 3 steel. Back, 42 in. long, with 3 in. set; width of steel, $1\frac{1}{2}$ in.; number of plates, 4; thickness, No. 3 steel. Back cross, 32 in. long, with $3\frac{1}{2}$ in. set; number of plates, 4; thickness, No. 3 steel. Axles, front, $1\frac{1}{8}$ in.; rear, $1\frac{1}{4}$ in. Tires, solid rubber. Fifth wheel, 20 in. diam.; kingbolt, $4\frac{1}{2}$ in. forward of center. Track, outside, front, 4 ft. 4 in.; rear, 4 ft. 6 in.

Painting.—Body, seat panels, dark green, moldings black. Gear, dark green, striped black. Trimming, green cloth. Finish, black.

PARK PHAETON.

Scale, $\frac{1}{2}$ in. to the ft.

(See Fashion Plate No. 542.)

FASHION Plate No. 542 represents a stylish carriage built by the Columbus Vehicle Co., of Columbus, O., and designated by them as a "park phaeton." The cutdown at the front, and between the seats, makes the vehicle easy of access, while the large roomy seats give comfort to the rider. The carriage is a plain perch and headblock and a coach axle at the rear.

Dimensions of Woodwork.—Body, width across top, 38 in.; across bottom, 32 in. Wheels, wood hub; height, front, 38 in.; rear, 44 in. Hubs, length, 6 in.; diam. at center, $3\frac{1}{2}$ and $3\frac{3}{4}$ in.; front end, $2\frac{1}{2}$ in.; back end, 3 in. Size of spokes, $1\frac{1}{8}$ in.; number of spokes, 12 and 14; stagger, $\frac{3}{8}$ in. Depth of rims, $1\frac{1}{8}$ in.; tread of rims, 1 in. Depth of bands, $2\frac{1}{2}$ in.; back, $\frac{7}{8}$ in. Distance between center of axles, 70 in.

Dimensions of Ironwork.—Springs, front, 36 in. long between centers of heads, with 7 in. opening on main leaf. Width of steel, $1\frac{3}{8}$ in.; number of plates, 4; thickness, main, No. 3, rest, No. 4 steel. Back, 36 in. long, with $8\frac{1}{2}$ in. opening on main leaf. Width of steel, $1\frac{3}{8}$ in.; number of plates, 4; thickness, main, No. 3, rest, No. 4 steel. Axles, $1\frac{1}{8}$ in. Tires, 1 in. by $\frac{1}{4}$ in. Fifth wheel, 14 in. diam. Track, outside, 4 ft. 8 in.

Painting.—Body, front and rear seat panels, dark green; moldings black; gear, dark green, striped with black. Trimming, green cloth. Finish, lamps, rails, etc., black.

DEMI MAIL PHAETON.

Scale, $\frac{1}{2}$ in. to the ft.

(See Fashion Plate No. 543.)

FASHION Plate No. 543 illustrates a heavy driving phaeton designated as a "demi mail." The body has a cutunder to accommodate the platform gear, allowing a full turnunder. The seat is deep and

made up with a stanhope pillar. The gear is a heavy elliptic platform, making an easy riding and durable vehicle. A vehicle of this class requires a heavy team hitched close, and is recognized as one of the leaders in its class.

Dimensions of Woodwork.—Body, width across top of pillar, outside, 41 in.; across bottom, 31 in.; outside of panel, top, 31 in.; outside of panel, bottom, 30 in. Footman's seat, 34 in. wide. Wheels, wood hub; height, outside of tires, front, 35 in.; rear, 44 in. Hubs, length, 7 in.; diam. at center, $6\frac{1}{4}$ and $6\frac{1}{2}$ in.; front end, 4 in.; back end, $4\frac{3}{4}$ in. Size of spokes, $1\frac{5}{8}$ and $1\frac{3}{4}$ in.; number of spokes, 10 and 12; stagger, $\frac{1}{4}$ in. Depth of rims, $1\frac{5}{8}$ in.; tread of rims, $1\frac{1}{2}$ in. Depth of bands, front, $2\frac{1}{2}$ in.; back, 1 in. Distance between center of axles, 51 in.

Dimensions of Ironwork.—Springs, front, 38 in. long between centers of heads, with $6\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 4; thickness, main, No. 2, rest, No. 3 steel. Rear, 40 in. long, with $7\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 4; thickness, main, No. 2, rest, No. 3 steel. Axles, $1\frac{1}{4}$ in. Tires, $1\frac{1}{2}$ in., solid rubber. Fifth wheel, full circle, 20 in.; semi-circle, 26 in. diam. Track, outside, 4 ft. 8 in.

Painting.—Body, black; seat panel, brackets and pillars, dark green. Gear, dark green, striped with black. Trimming, blue cloth; driver's seat plain. Finish, black.

GENERAL UTILITY WAGON.

Scale, $\frac{1}{2}$ inch to the foot.

(See Fashion Plate No. 544.)

THE light business wagon illustrated by Fashion Plate No. 544 is something of a departure from the common line. The front is covered with paneled top, back and side windows are put in the sides and back. The body is long and left open under the seat. The rear is furnished with a tail gate. The rings and slots are secured to the body by sockets and hooks and can be removed at will, leaving a long plain body, if desired. This arrangement fits it for the delivery of heavy or light goods, while the driver is protected from the sun and rain.

Dimensions of Woodwork.—Body length, 9 ft.; width across outside, 44 in. Width of seat across top, 50 in.; across bottom, 45 in. Wheels, wood hub. Height, front, 3 ft. 2 in.; rear, 4 ft. 4 in. Hubs, length, 8 in.; diameter at centre, $5\frac{1}{2}$ and 6 in.; rear, 4 ft. 4 in. Hubs, in.; back end, $4\frac{1}{2}$ and 5 in. Size of spokes, $1\frac{1}{2}$ and $1\frac{5}{8}$ in. Number of spokes, 12 and 14. Stagger, $\frac{1}{2}$ in. Depth of rims, $1\frac{5}{8}$ in. Tread of rims, $1\frac{1}{2}$ in. Depth of bands, front, $2\frac{1}{2}$ in.; back, 1 in. Distance between center of axles, 60 in.

Dimensions of Ironwork.—Springs, front, 36 in. long between center of heads, with 9 in. opening on main leaf. Width of steel, $1\frac{3}{4}$ in. Number of plates, 7. Thickness, No. 2 steel. Back, 36 in. long, with 9 in. opening on main leaf. Width of steel, $1\frac{3}{4}$ in. Number of plates, 7. Thickness, No. 2 steel. Axles, front, $1\frac{1}{2}$ in. fantailed; rear, $1\frac{1}{2}$ in. square. Tires, $1\frac{1}{2}$ in. by 7-16 in. steel. Fifth wheel, 14 in. diameter. Track, outside, front and rear, 4 ft. 8 in.

Painting.—Body, dark green, upper panel black stripe with cream yellow, with a $\frac{3}{8}$ in. line. Gear, cream yellow; all ironwork black; no striping. Trimming, leather cushion back and fall.

NEW YORK MERCHANDISE TRUCK.

Scale, $\frac{3}{8}$ in. to the ft.

(See Fashion Plate No. 545.)

THE heavy merchandise truck shown by Fashion Plate No. 545 is specially fitted for the cartage of heavy merchandise, such as is handled by wholesale grocers, drygoods merchants, etc. The slatted side can be lifted out bodily and loose rugs be used instead. The long rail on the top of the long rugs is fitted so that it can be removed if desired, its mission being to support a heavy canvas cover as a protection from storm. The top over the drivers' seat is one of the Sprague adjustable tops.

Dimensions of Woodwork.—Body, length, 12 ft, 6 in.; width, 5 ft.

Width of seat, 30 in. Wheels, Sarven pat.; height in the wood, front, 37 in.; rear, 55 in. Hubs, length, $11\frac{1}{2}$ in.; diam. of flange, $9\frac{1}{2}$ in.; front end, 5 in.; back end, 6 in. Size of spokes, $2\frac{1}{8}$ and $2\frac{1}{4}$ in.; number of spokes, 16 and 18. Depth of felloes, 3 in. Tread of rims, $2\frac{1}{2}$ in. Depth of bands, front, 3 in. Distance between center of axles, 7 ft. 7 in.

Dimensions of Ironwork.—Springs, front, 40 in. long between centers of heads, with 4 in. set; width of steel, $2\frac{1}{2}$ in.; number of plates, 12; thickness, main, No. 1, rest, No. 2 steel. Front cross, 46 in. long with 5 in. set; number of plates, 14; thickness, main, No. 1, rest, No. 2 steel. Rear, 42 in. long with $3\frac{1}{2}$ in. set; width of steel, $2\frac{1}{2}$ in.; number of plates, 15; thickness, main, No. 1, rest, No. 2 steel. Rear cross, 48 in. long with 5 in. set; number of plates, 17; thickness, main, No. 1, rest, No. 2 steel. Axles, front, 2 in.; rear, $2\frac{1}{4}$ in. Tires, $2\frac{1}{2}$ in. by $\frac{7}{8}$ in. Fifth wheel, 32 in. diam. Track, 5 ft. 10 in.

Painting.—Body, red; striping, and campfers on rails black; fine lining, white. Gear, red; striping, black.

CANOPY TOP SURREY.

(For illustration see "Latest Styles.")

PLATE CXCI illustrates a very attractive canopy top surrey, built by Keator & Wells, Cortland, N. Y. There is much in this carriage to recommend it to lovers of a neat, comfortable and stylish summer vehicle. It should prove a good seller as it, in addition to being pleasing to the eye, is built in a substantial manner.

PHYSICIAN'S WAGON.

(For illustration see "Latest Styles.")

PLATE CXCI. The physician's wagon shown by this plate was designed and built by Cole & Woop, of New York City. It is hung upon an arched axle, elliptic spring gear and wood wheels, with rubber tires. The body is large and commodious, and the low front makes it easily accessible.

RUNABOUT.

PLATE CXCIII illustrates a runabout of the latest type with body slightly overhanging the axles, high wood wheels, rubber tires, horse harnessed with "Swiss" breast collar. This turnout is the property of one of the best known of New York's wealthy horsemen.

STANHOPE.

PLATE CXCIV illustrates an ideal turnout in the Stanhope class. The pose of the body is absolutely correct. The horse is one of the finest type, and the harness is the standard round collar.

HEAVY SPIDER.

PLATE CXCIV shows a heavy spider and team. This turnout represents one of the most popular driving rigs for heavy team. The harness is the standard long tug "coach," without breeching.

GOVERNESS CART AND PONY.

PLATE CXCVI illustrates a popular basket body governess cart and a pony in breeching harness, the accepted pattern. The turnout was awarded a blue ribbon at one of the horse shows last fall.

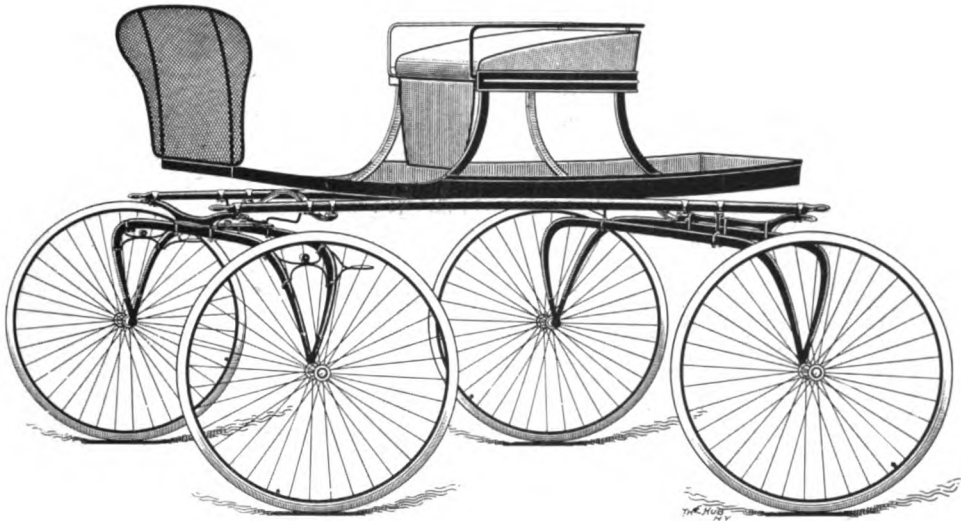
SHETLAND TEAM AND TRAP.

PLATE CXCVII. The ponies and traps shown by this plate are the property of Mrs. Wentworth Hope, of Kent, England, and they thoroughly illustrate the ideal type of an English turnout in their class.

DOS-A-DOS AND PONY.

PLATE CXCVIII illustrates a pony dos-a-dos, the body being hung on side bars and cross springs. The harness is the popular style of round collar breeching with overdraw check.

Latest Styles. January, 1902.

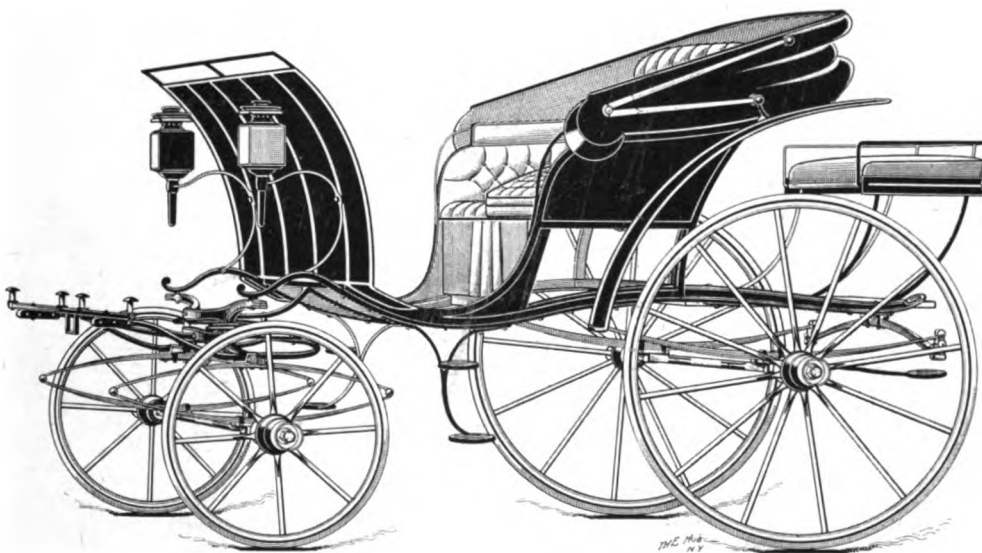


No. 540. Speed Wagon.

SCALE, $\frac{1}{8}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$1.50.)

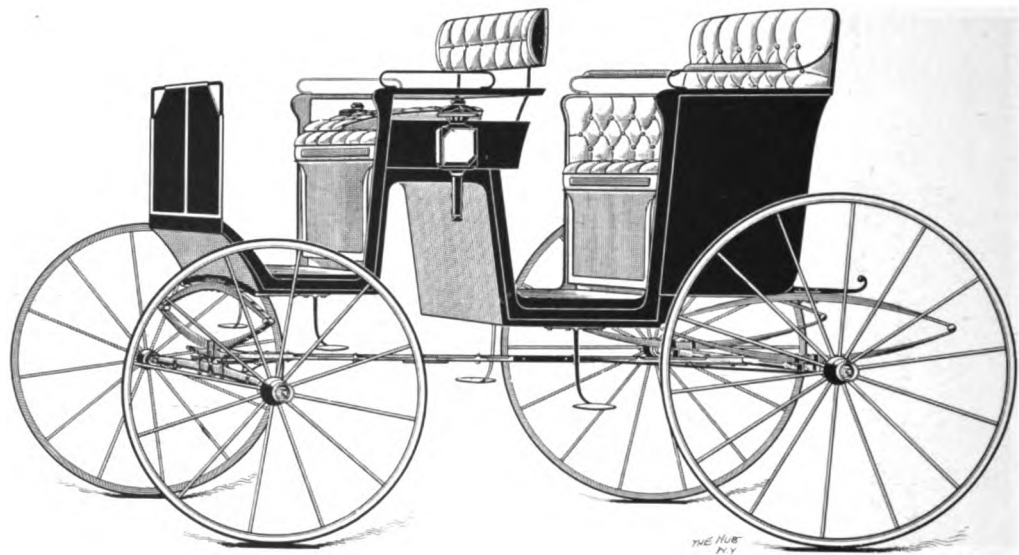


No. 541. Ladies' Phaeton.

SCALE, $\frac{1}{8}$ INCH TO THE FOOT.

See description under "Latest Styles."

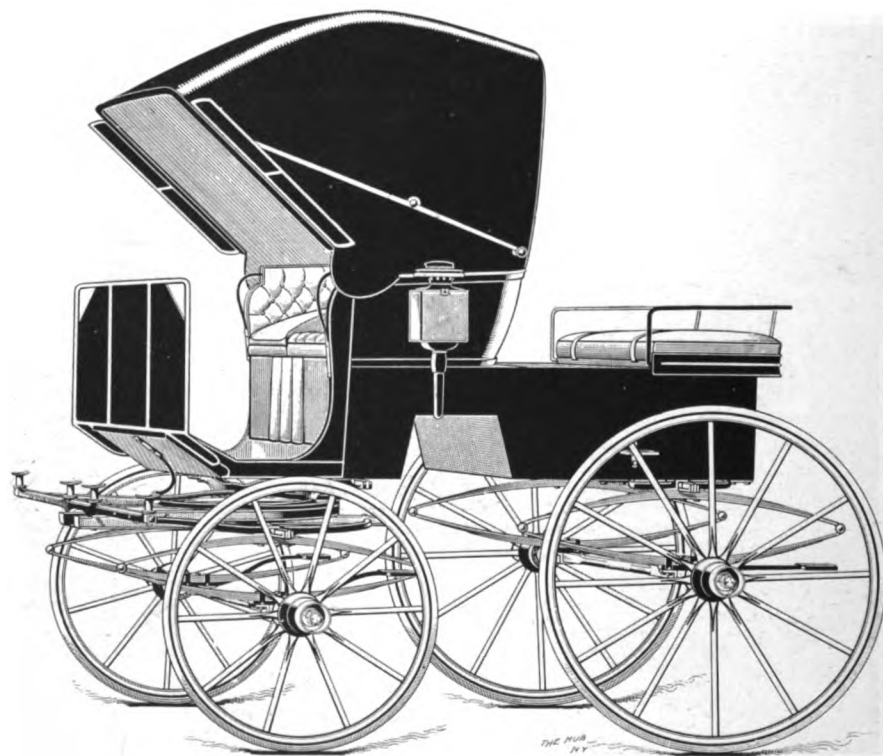
(Electrotype, \$1.50.)



No. 542. Park Phaeton.

SCALE, $\frac{1}{8}$ INCH TO THE FOOT.

See description under "Latest Styles."

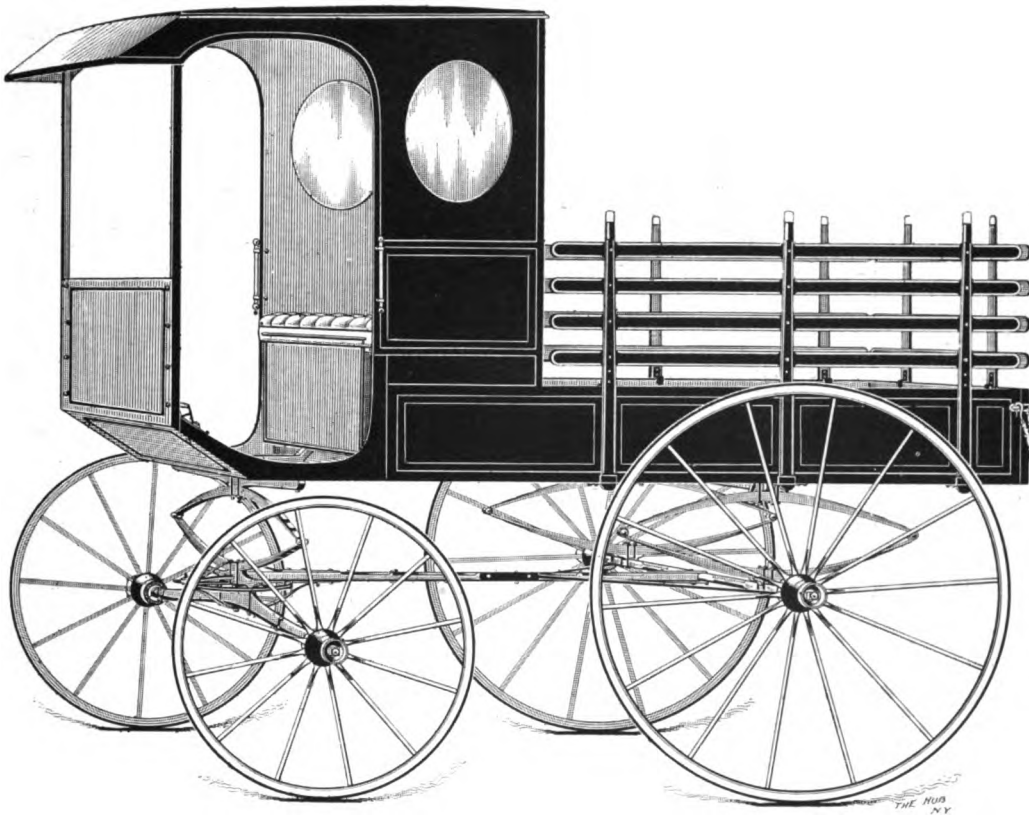


No. 543. Demi Mail Phaeton.

SCALE, $\frac{1}{8}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$2.00.)

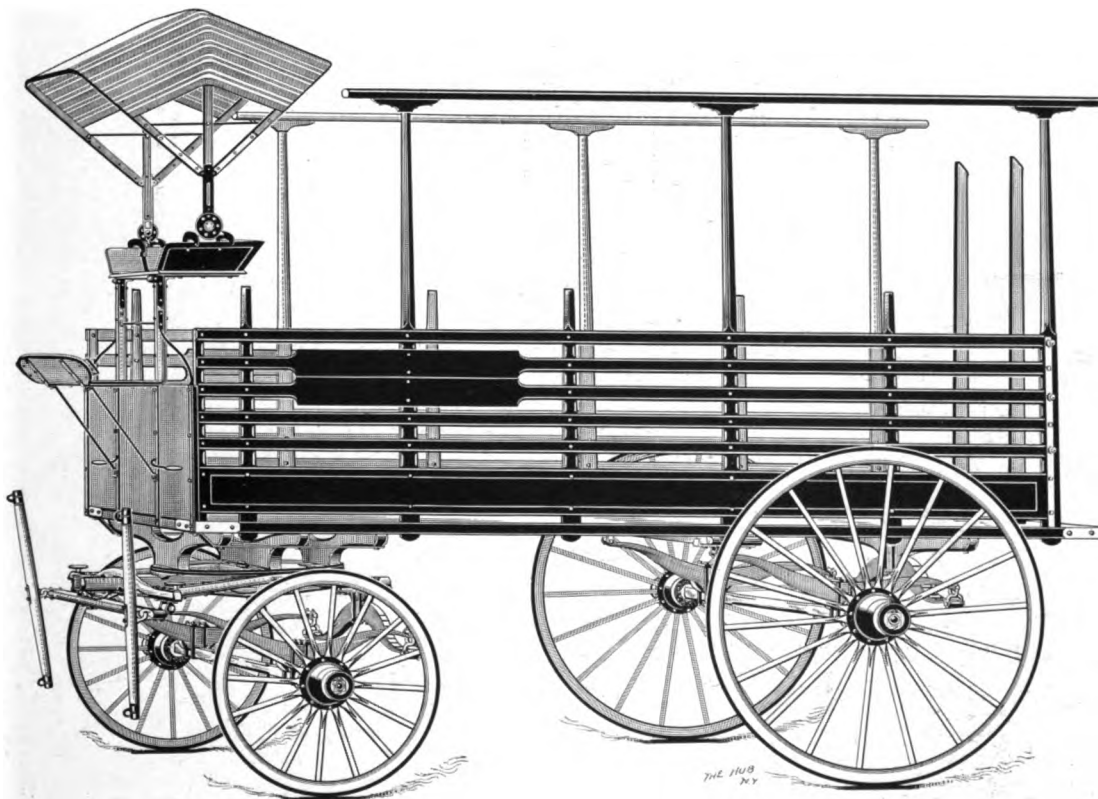


No. 544. General Utility Wagon.

SCALE, $\frac{1}{4}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$2.00.)



No. 545. Merchandise Truck.

SCALE, $\frac{3}{8}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$2.00.)



Plate CXCI. Physician's Phaeton.

See description under "Latest Styles."

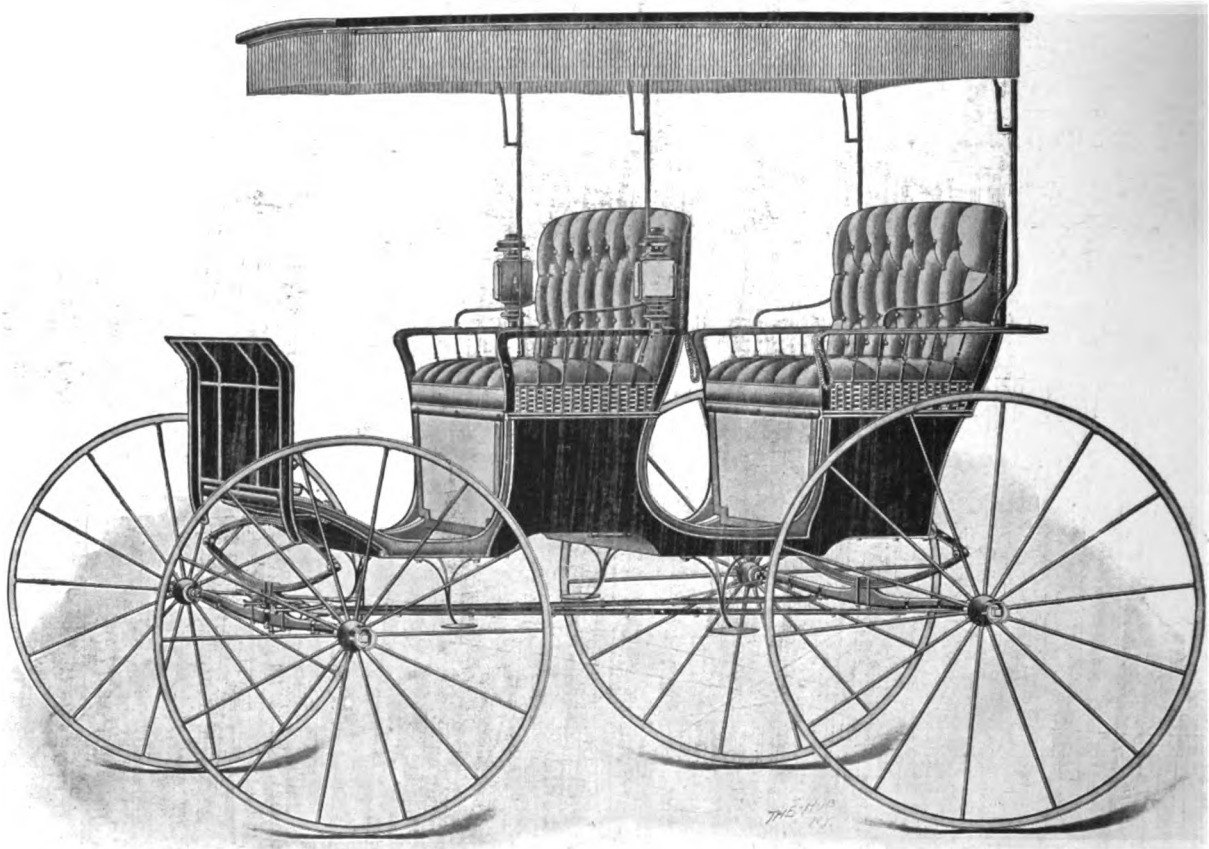


Plate CXCII. Canopy Top Surrey.

See description under "Latest Styles."

Plate CXCIH.

Runabout.

See description under "Latest Styles."

(Electrotype, \$2.00.)

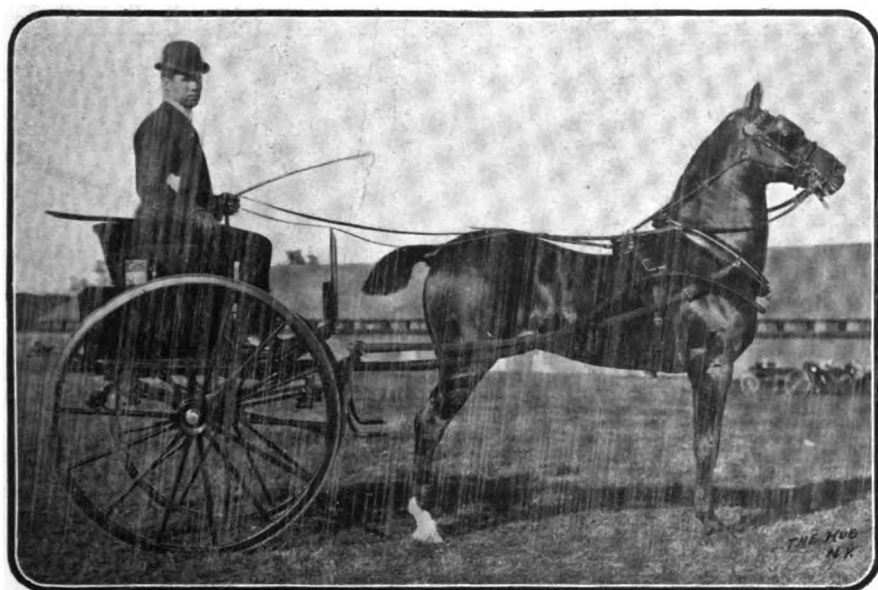
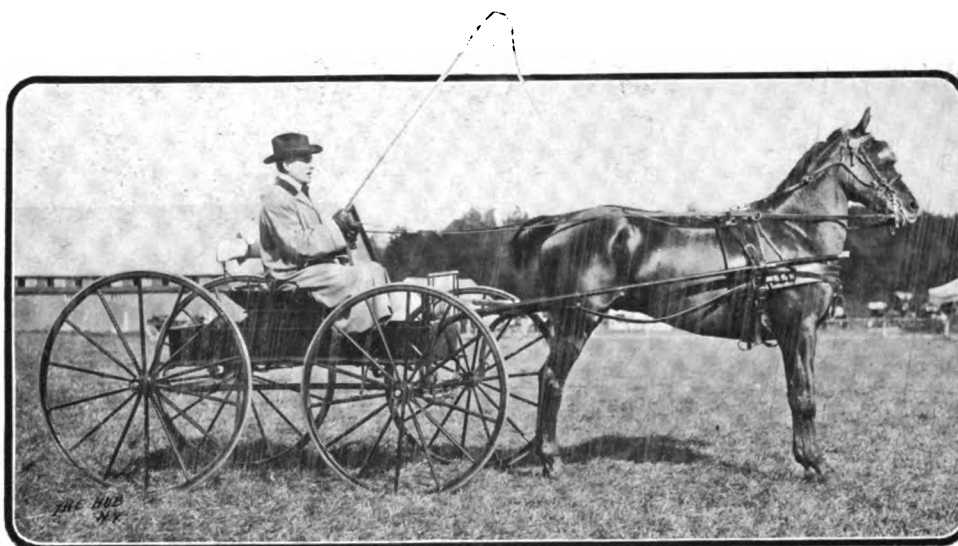


Plate CXCIY.

Stanhope.

See description under "Latest Styles."

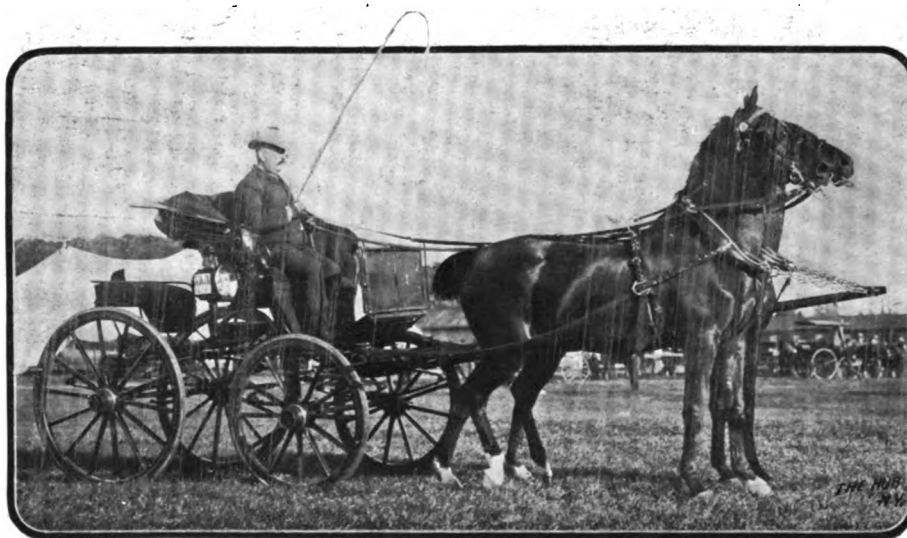
(Electrotype, \$2.00.)

Plate CXCV.

Heavy Spider.

See description under "Latest Styles."

(Electrotype, \$2.00.)



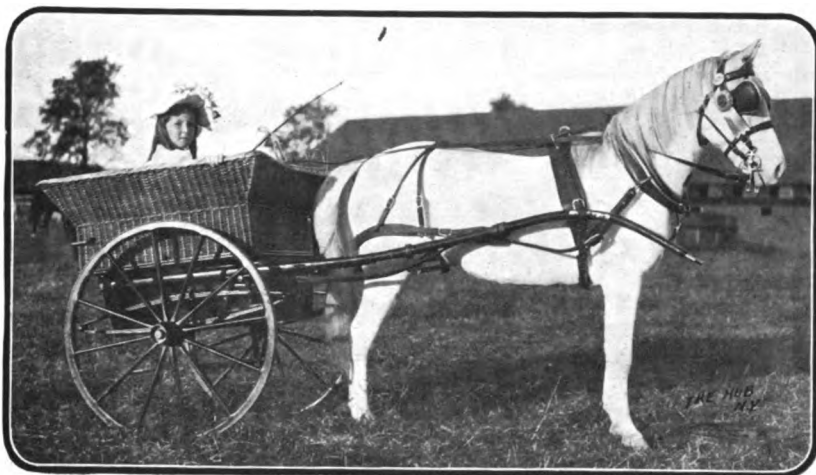


Plate CXCVI.

Governess Cart and Pony.

See description under "Latest Styles."

(Electrotype, \$2.00.)



Plate CXCVII

Mrs. Wentworth Hope's
(Edenbridge, Kent, England)
Shetland Pony and Cart.

See description under "Latest Styles."

(Electrotype, \$2.00.)



Plate CXCVIII.

Dos-a-Dos and Pony.

See description under "Latest Styles."

(Electrotype, \$2.00.)



Miniature Automobile Built for
George J. Gould, Jr.

For description, see "Automobile Department."



Automobile on the Theatrical Stage.

For description, see "Automobile Department."



New York City Repository
of the
American Bicycle Co.

For description,
see "Automobile Department."

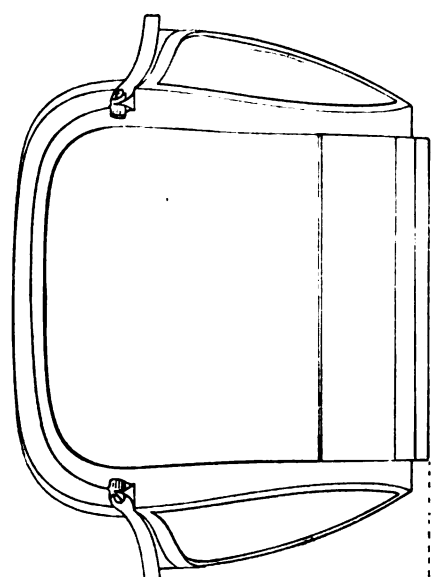


Fig. 7.

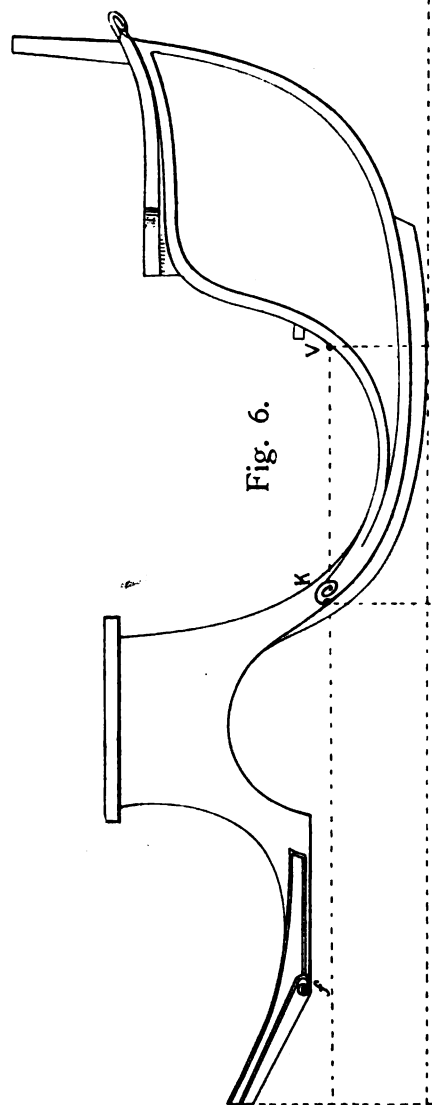


Fig. 6.

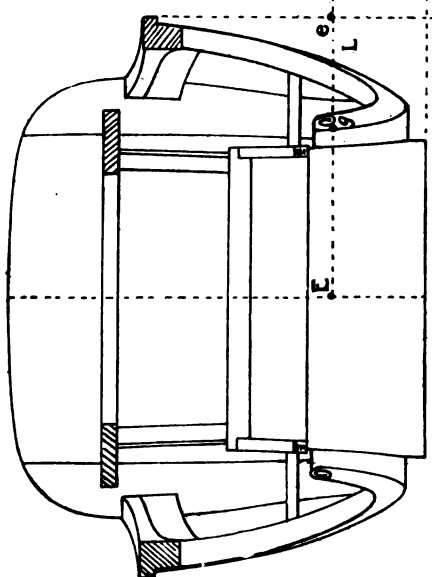


Fig. 5.

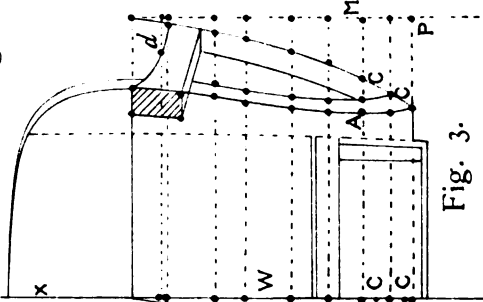


Fig. 3.

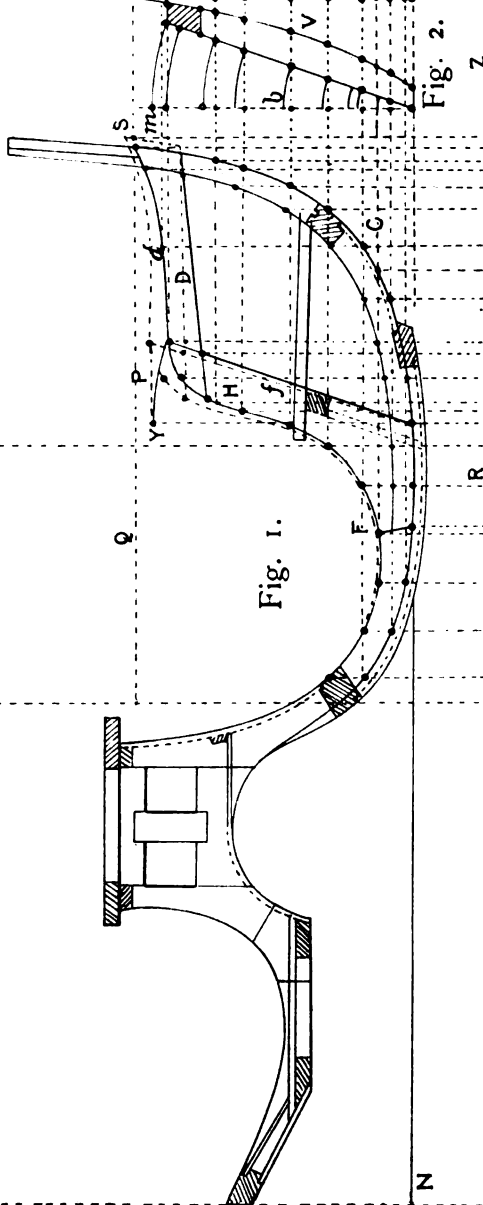


Fig. 1.

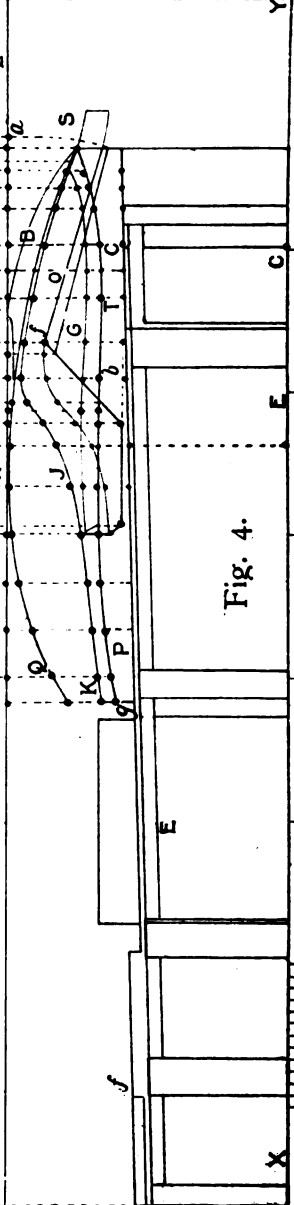


Fig. 4.

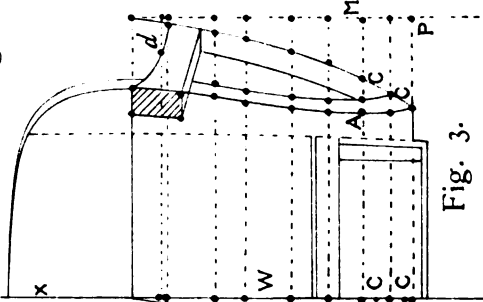


Fig. 2.

WORKING DRAWING OF A MINIATURE CABRIOLET BODY. SCALE, $\frac{3}{4}$ INCH TO THE FOOT.

CARRIAGE TECHNICAL DEPARTMENT.

Comprising the Wood, Smith, Paint and Trimming Shops.

WORKING DRAWING OF A MINIATURE CABRIOLET BODY.

($\frac{3}{4}$ inch scale.)

(See Working Drawing, page 446.)

THE side view of the body, Fig. 1, shows the design from which we proceed to establish the working lines of the plan, Fig. 4, where the side sweep of the body is laid down and determined by the width at three points, from the center X Y, to the tangent Z the half width is $23\frac{1}{2}$ in. at the elbow S, at the toe bracket the half width is 18 in. From the elbow S, we measure in a distance of 4 in., the width of the bottom side T, the width required to work on the side sweep Q, and the turnunder V, Fig. 2. We recess the toe bracket a depth of 1 in. at volute f, Fig. 4, to receive the dash foot, and this point at the front, with the width established at S, the elbow, are the two points by which we lay down the trace of the rocker E. Where the curve C, Fig. 1, touches the base N. P, let fall the straight line R J, to the rocker E, and where this vertical line cuts the tangent Z, is the remaining point of which S is the other, we draw this curve Q as round as the contraction will allow. From K, Fig. 6, let fall the vertical line to g. The thickness from the rocker Δ is $1\frac{1}{2}$ in. and where the foot of the wing pillar is boxed into the bottom side is $2\frac{1}{4}$ in., and where the head of elliptic spring comes $1\frac{3}{4}$ in. are measured out from E. The contraction of the rocker, through these obtained points from g, the volute to S, the elbow, draw the trace g, T, S, the lower outline of the body. The space included between the upper and lower outlines of the plan, lines Q S, the upper, line g, T, S, the lower, is the turnunder at any points on the sides of the body, and to these finish the side sweep out to the front end of the body. We take the space between the side curves Q and T, and carry it forward to a point on the curve of the bottom side of the body of Fig. 1, and where it cuts this edge let fall the point to the plan, and from the curve T set out as many points as may be required, and when this is accurately done pass the trace of side sweep through these obtained points and the turnunder is obtained at all points of the height of the wing pillar H, and of the bottom side T, and the arm rail D.

To understand fully the rules employed upon the working drafts of carriage bodies, take the point C, Fig. 1, construct each way the vertical and horizontal lines d, C and M, C, cutting the horizontal and vertical of projection. The turnunder B, C, will be the turnunder at R. J, the turnunder Q, P, the turnunder V, C, the turnunder M, A, of the rear elevation, Fig. 3, at the arm rail d; from Z to B, Fig. 4, carried to Fig. 3, from M to d, it is the turnunder at that height in each plane on any point of height which it cuts in the side, Fig. 1. This same plan will apply to the vertical line E, V, and thence to the front elevation, Fig. 5. The projection here executed is alike in both planes of projection. If we measure from e to L, Fig. 5, it will equal the distance from Z to J, on the vertical line E, V. If we take the distance e, g, Fig. 5, it will equal the distance Z, g, of the plan on the vertical line K, at the height of the volute K, g, and if the curves are correctly worked out upon the framing pieces the effect obtained will be like that of Fig. 7, the object intended when the line T, is planned. As we design this line so will the appearance of the rear view be affected.

It has been, and is now, the custom to find the trace T, from the side sweep Q, and the turnunder line V, Fig. 2, but in this drawing, according to the system just explained, both lines of the side sweep are determined by the width of the body, and form the plan the turnunder of the curve V, is projected in elevation, to be referred to if

necessary. This turnunder curve is not a generator of the side surface of the body if we are to use the plan as our working draft. We know that it is an old custom, one that has been with us a long time, to establish the draft directly from the turnunder curve, but we have in this draft abandoned such a procedure and established the working lines upon the horizontal plane, directly below the side elevation, and if the draft was made full size the plan would be drawn upon the side, Fig. 1, to a convenient size of paper of 40 in. wide. The turnunder of the side would appear on the draft, but little notice would be given to it, since the wing pillar would be blocked up and sawed to shape according to the side and plan. The curve V, inclined to the tangent W, is not by any means the turnunder of the wing pillar H; neither can the amount be obtained in the vertical elevation, Fig. 2, because here we have caused the side sweep Q, to touch the tangent Z, a great distance ahead of the top of the pillar H, something that the ordinary body maker would not attempt, he being satisfied with commonplace appearance that is becoming to the progressive carriage maker a monotonous objection. The turnunder of the side surface of the body is a contracted curve as well as inclined, as may be observed in the front view, which, like the rear view, is projected directly from the plan, Fig. 4. With no reference to the vertical elevation, Fig. 2, the whole entire draft is laid down without paying any attention to the vertical sweep of the line V. As before stated, this line of turnunder V, is a projected curve, obtained from the plan, whereby we may obtain the lengthening of the pillar H, but since the backward pitch is the same as the inside flare of the pillar it can be obtained directly from the side view, which is always possible. It is a singular fact that men in all carriage building countries for the last hundred years have struggled with this problem of body making, especially with this particular type of outline, without in the least making any noticeable progress. To state the case as it really exists today, without fear or favor, the situation with few exceptions is worse than at any other time, because some of our professional draftsmen, in order to simplify the work, have spoiled the body. These draftsmen and writers on this subject have instructed the learner to commence the working lines on a similar draft to this with the turnunder line, stating that it requires a long practice, good judgment, and they advise the learner to give a full circular curve to the turnunder, with the exception that it should be a trifle toward the top and a trifle rounder toward the bottom. It is now, and always has been, a question with us, how it is possible for an instructor in the knowledge of the craft of body making to commence the draft of the body of the cabriolet with the turnunder as the first consideration; but it is common to see such advice in print. Our position is that it is of no consequence whether the turnunder is 6 in. or 3 in. We do not look to the turnunder of the side to establish the width of the body. Instead we find first its outside width at the bow and at the outside of the back at the elbow S, then to that of the rocker at the front, where the body is fixed to the gear. We also consider the suspension at the rear end of the body, and in this way all guesswork is avoided. The learner will suppose that the panel surface of the side will be flatter on the bottomside than it will be on the pillar H, but it should be rounder, and it will be, because the shape of the bottomside increases the side swell rather than diminishes it, and the whole entire design of the body observed in any view suggests to the eye sufficiently round panels and exterior edges.

The principle which guides the work as planned on the construction of this drawing is that the points stationed on the lower outline edge of the bottomside C, Fig. 1, are intersected by a vertical line which leads to the plan, Fig. 4, and by horizontal lines which lead to the rear elevation, Fig. 3. These latter are continued towards the front, to be used at the same time and in connection with those back

of the vertical line E V. The result of this system is that the turnunder of the side is the same on the bottomside as it is on the pillar H, at exactly the same height, and wherever a horizontal line cuts the edge of the pillar and the bottomside, either higher up or lower down, the turnunder on either will be the same. The turnunder R, J is equal to that of B, C, both of the same height. The first belongs to the top line of the exterior edge of the wing pillar and not to the bottomside itself. The latter belongs to the lower line of the exterior edge of the bottomside; the turnunder of these two points, stationed the same height above the base N, P of the side, are exactly the same amount, and this is precisely the same obtained result, with every point laid down at any height or at either side of the point taken, and they are so plainly marked upon the draft as to be clearly distinguished. We have used these points of projection plentifully, so that the learner may test them as he proceeds. In this way we have established the side sweep of the upper and lower outlines of the body, from one end to the other, without a turnunder line as afterwards obtained from the plan and projected in elevation is the line V, Fig. 2.

In laying down the pillar H, it is necessary that the foot of the pillar shall extend to the lower surface of the bottomside, that in boxing into the bottomside its base, is at the top of the moulding. What we have done is to draw its projection in plan, according to the thickness of the pillar, when its inside surfaces are flat, so that the curved surface can be pointed off from the plan, as here shown, and for the front edge only the pattern can be laid on the back surface of the pillar, and the curve marked instead of being pointed off, and when this pillar is blocked up to the outward flare of its inside surface it is handsawed, the table being level, and the top end of the pillar must be according to the plan as measured from the point S, at the bottom to the inside: at the top $6\frac{1}{4}$ in. higher than the bottom-end, and the pillar so blocked that the back surface of the pillar will be square to the table. Then when the pillar is set up the two edges will be straight across the body. For if we saw the front and back surfaces of the pillar when it is on the saw table, in the exact position which it will assume when glued to the body, then the two faces of the pillar will coincide with the straight edge when testing their accuracy.

The arm rail D, is a difficult piece to point correctly. It is difficult to so dress its curved surface that it will, when cut to the proper length, lay on the surface of the bottomside at S and on the pillar H, at the top. We have undertaken to lay down the trace of its inside surface, represented in plan by the projected edges G and O, G, the bottom edge of the inside, and O, the top edge. From the instruction of the arm, with the pillar at its shoulder, drop the points bottom and top to the plan, which will give the turnunder of its inside surface at this point. The other end of the arm is determined by its position in the elevation, Fig. 3. Where the turnunder is less we carry these obtained points to plan and set them in from the tangent Z, and then correct the points then obtained in the lines O and G. Then on the line O, at the shoulder f, as a center, and S, as distance, describe its arc to a, and thence up to m. This will give the length of the arm because we add its plan length to that of the side. On every modern, up-to-date, thoroughly developed working draft that has an arm piece, or any other piece that is longer than the side elevation gives, or higher or wider, its true height is obtained by adding the contraction, or inclination as the case may be, to its other position, as we have done here, and when this length is obtained the back end of the arm is cut exactly to the length shown on the Fig. 1 at the point m, as obtained at a, of the plan; this is the whole length of the arm. We then take a long toothed gauge and set it to the thickness of the bottomside at S, Fig. 1, and gauge on the shoulder. This is the quickest way that this joint can be made. We also raise the top ends of the wing pillar H, Fig. 1, as much as it will fall in coming to its position in the turnunder V, Fig. 2, but all that we have to do here is to arc the length of the side position of the pillar to a vertical position Y; thence straight to the point P, and this obtains the height to which the pattern must be made, with which we mark the line on the pillar to where it is afterwards dressed, and in boxing the foot of the pillar into the bottomside its full thickness of $1\frac{3}{4}$ in., we first screw on a slat to the back edge of the pillar at the top, whose length above the level of the bench shall be equal to the thickness of the bottomside and flare of turnunder. Then when the bottomside is fastened to the bench and the pillar boxed in it the top of the pillar will stand true to the flare of turnunder to the smallest fraction of an inch. It is the only workmanlike way in which this pillar can be correctly set in and come exactly to its proper position

on the draft. Its distance from the elbow S, must be perfect, which is not difficult to determine if we proceed in the mechanical manner described. In fact it is the simplest joint made on the body owing to the advantage we are able to take of it. When this joint is made to a perfect fit a key or wedge is made to drive in between the back edge of the pillar and the shoulder of the bottomside, which insures a joint at the toe of the pillar F. We mention these three joints as they are plainly shown on the draft and because the method for doing the work is the best within reach of the body maker, and is the one which a first class man will always, as soon as learned, employ.

If we raise the top of the pillar H, to an amount equal to its fall in the flare of the turnunder then the end of the arm joining it must also follow, and in taking the length of the arm rail, and in setting the bevel for its joint with the pillar we must work to its height P, and the line of the pillar will then be that of f, and it is to this line and that of the line D, the bottom edge of the arm raised with the pillar to this height, and not to the full edge lines of these two framing pieces. Then if we cut the shoulders to this height and to this length and to this level, we will have made these two pieces to the draft and to the dimensions laid down.

This is the true principles of the craft on which we have preached for the last twenty years. It was true in ages that have passed and will remain true for ages to come.

A MODERN GIG FOR A 14.2 PONY.

THE gig, of which we give a working drawing on page 446, is an instance of the survival of the fittest, for it has been developed during the past century from several two wheel vehicles, each of which had many things to recommend them, but which did not combine in themselves the great advantages which can be claimed for the gig. The body was adopted from the four wheel mail phaeton. The front pillar, commonly called the Stanhope pillar, having been evolved from several attempts and finally adopted for the "Stanhope" phaeton, a lighter mail phaeton and the "Stanhope" gig, a phaeton body without the hind seat, hung directly on the axle on four mail springs, the shafts being rigidly plated and affixed to the axle also. This made a much lighter and handier carriage than any of those then in use, while being cheaper and yet more stylish for driving than the tax cart and country carts. No hood was fitted to the first Stanhope gigs, this coming afterwards when the cabriolet and curricule were going out of fashion. The Stanhope gig is too heavy for general use, and it did not meet with all the requirements of the public. A lighter gig, the Dennett, was introduced, hung on three springs with a lighter body and having the shafts fixed differently to the Stanhope. This again was improved upon in the "Goist" gig; in this style lancewood shafts, having a joint at the hind end, were introduced. The method of hanging the body on the three springs differed from all others, and these gigs were a great success, and the modern gig is the outcome really of the "Goist" principle of suspension.

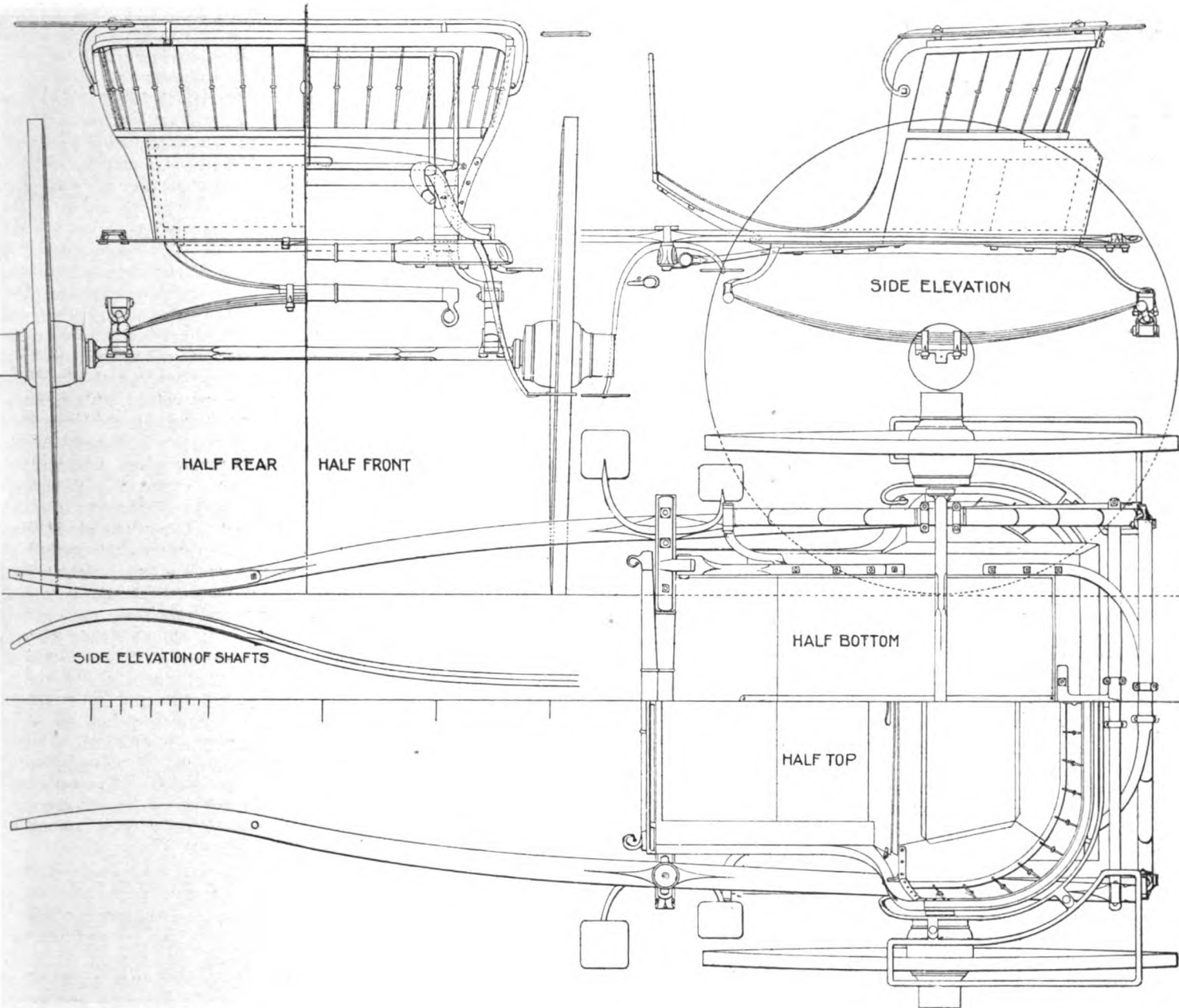
The gig, of which we give a working drawing, cannot be said to belong to any particular style, but is an illustration of the adoption of the best principles of construction of a two seated, two wheeled conveyance, and it is a pattern and style which may be confidently followed, being individual without being imitative.

The Stanhope pattern of body has held its own throughout all these changes, lighter in construction the main features and lines are the same. The body is made of framing and panelling and the principal timbers and method of framing may be described as follows: The two bottomsides, cross bar, rockers and toe pieces for the bottom framing, the two sanding pillars, the two top rails and corner pillars, the two cross rails and three or four battens, the bent seat rail and four seat framing pieces, the bottom boards, side and back panels, seat boards and spindles, with the heel board complete the materials for making the body. The framing should be of clean, sound, white ash; the bent rail of ash also; the rockers, toe pieces, boot framing of birch or brown ash; the front foot board of sycamore or birch; bottom boards, battens, seat and heel boards of yellow pine; the boot panels of mahogany, and the spindles preferably of lancewood. In making the body, it is necessary that great care should be taken if it is desired to get as near to perfection as possible, that all the timbers should be dressed up true and properly. When this is done, the result is that a body is produced which can be looked at from every point and which will give satisfaction to the draughtsman and the bodymaker, as well as the customer. Accuracy in dressing up timber is necessary to produce a good result, and half an hour

extra spent on the accurate dressing, will save hours in framing, for when the faces, squares and angles are accurate, the bodymaker knows that the result will be correct.

The Stanhope pillar, or sham door pillar, of the body, being framed in at two angles, one inclined backward and the other outward, the full length of the pillar is not shown on the drawing of the side elevation. To find the full length it is necessary to measure the side and add the difference in the length when measured perpendicularly to the side elevation. Below is a drawing of the pillar showing the full length of the pattern, and also that of a thin pattern to be bent to the round and hollow of the outside sweep. The heavy lines,

To measure off the pattern for working to, and to obtain the proper shape of the curved line, describe the drawing into equal spaces as shown, and then with the compass measure off the distance A, 3, and mark this distance on each one of the lines following the curve, and in a similar manner the distance B, 4, and connect the points in a regular curve; this gives the line K, 3 and the figures 3, 4, 2; K, 3 is the true size of the pillar pattern. If it is considered necessary to have a thin pattern to lay on the curved surface a further measurement will be necessary. To obtain this accurately, divide the side curve shown on the drawing board into convenient spaces, as a, b, c, d, e, f, g, h, j, k, l, m, n, o, p. With the compass and E as center, measure off the dis-



WORKING DRAWING OF A MODERN GIG. SCALE $\frac{3}{4}$ INCH TO THE FOOT.

A B B G G F and F A, represent the figure of the full size drawing, as given to the workman; and the curved line C E B the side sweep and outward throw of the pillar; the line D E representing the top of the boot; the underneath line of the seat, B G, being the bottom line of the boot.

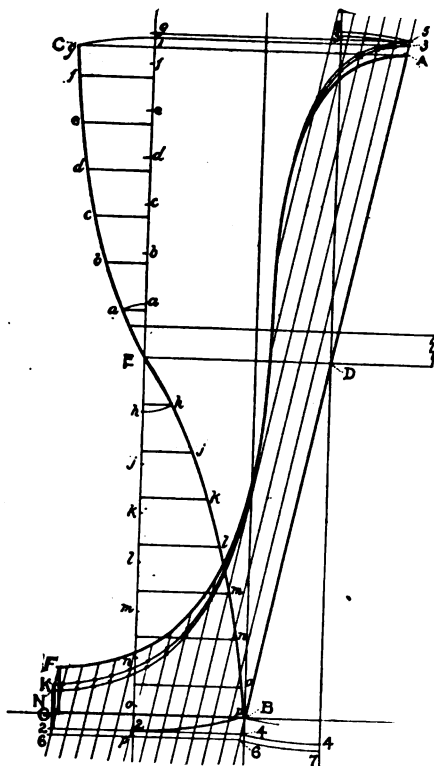
To ascertain the exact size and shape of the pillar, it is necessary to proceed geometrically and to develop the lines of the pillar, as shown on the side elevation, to its actual measurements. A line which is a double curve should be measured from the central point from which each curve starts, in this instance E. Through this point draw a perpendicular line with the compass, with E as the center, describe the arcs C, 1 and B, 2, square the points of intersection on the perpendicular line across to the line A, B, lengthened, and with the compasses and D as center describe the arcs 3 and 4; to the perpendicular line drawn through D, intersecting at 3 and 4, this gives the full length of the pillar on the "flat."

ances E, a and E, h, and mark them on the perpendicular line as a1 and h, and follow up each space, the distance on the curve a, b, h, j, and mark them off on the perpendicular. This length, g to p, is longer than the line 1, 2. These points, g, p, are squared across to 5 and 6 and developed on the pillar, giving the figure 5, 6, 6, N2, 5 as the true size of a pattern to be held on the pillar curved to the line C, E, B. In making the pattern it is necessary to mark off carefully the position of the seat line, to ensure the boot being of the dimensions intended by the drawing. The pattern for the curved line C, E, B, has to be lengthened at each end to the measurement given, 5, 6 and the foot and top of the pillar carefully marked off.

Having carefully dressed up the body timber the seat rail should be dressed up to the size and sweep required. The bend of the corner selected should be suitable for the purpose. A quicker bend will be suitable for spindles, but unless the angles of inclination backward and outward are upright it is not so suitable for a panel as a

longer curve. Whatever curve is selected, the seat line must curve exactly the same proportion, as the body when finished will present an irregular appearance. The spindles also must be fitted in proportionately to the length of the line of the seat rail of the seat edge.

The carriage part is composed of the wheels, axle, springs, shafts, bar, steps and connecting ironwork, and it is in the due proportions and hanging up of these things that comfort in riding to the occupant and the horse is to be found.



WORKING DRAWING OF STANHOPE PILLAR.

The body when framed together and dressed up looks very poor with its angular lines and edges, and to enrich this and give character to the framing, the edges are beaded and a hollow worked in between, round the rail and the edge of the seat. Along the bottomside another hollow is run, to where the bracket turns upwards. These, even if left undefined by variations in the color, give an effect and finish to the body when painted which no amount of careful fine-lining or ornamental striping in a variety of colors can do. The head should not be large, but must be well defined, the corners clean and well finished, and no lumps or uneven surfaces exposed, as these show up plainly when the body is painted.

The wheels may be of a substance suitable to the work for which the gig is intended to be used, neither too light or too heavy. The axle should not be less than $1\frac{1}{4}$ inches in diameter; the springs made to carry the weight without stiffness or undue flexibility; dee shackles are the best all round for connecting the ends of the springs; they permit of free movement while being secure, and have the minimum of joints to wear, or loose pieces to replace. The shafts are the most important part of the undercarriage; they should be of lancewood, clean bright canary color, and entirely free from knots; a strong, well defined heart, black and hard, on the underneath side, is not a disadvantage. Lancewood shafts should not under any circumstances have any bolts through them behind the tug plate, and that should not be too long. The object of fitting lancewood shafts to a two wheel carriage is to supply a spring and to take up some of the knee motion of the horse, and with that object the shafts should be dressed up and filled. Sometimes statements of the dimensions of lancewood shafts are given which a practical man who had been accustomed to mounting two wheeled work would not follow. An instance now in front of the writer gives the same thickness, $1\frac{1}{2}$ inches, at the tug, the bar and the end, the only difference being in the width, with the result that where the shaft should be the strongest it is the weakest and most liable to break should the horse slip and fall on the shaft. In giving directions to the bender for the dimensions of lancewood shafts it is not necessary to state more than the height of the bend at the tug, inside bend and size at the bar, and particulars as to waved edges; easy sweeps should be ordered. In dressing up the

shafts for a gig, select the pair of blanks and cut to the length. If the side sweep requires alteration there is always sufficient timber at the tug to allow of some being dressed off on each or either side; sometimes as much as an inch of difference can be made in this way in the width. The place of the bar is marked, and the inside edge of the shaft marked straight, the outside being marked off straight from the bar to the width at the end, and then dressed up to these lines. Sometimes a pair of shafts when placed resting on the under faces on a bench do not rise quite to the same height at the tug, or one has more bend behind the bar than the other; this has to be adjusted and the shaft marked accordingly and dressed up. The end of a gig shaft does not need to be more than $\frac{7}{8}$ inch in thickness, the bar $1\frac{5}{16}$ and the thickness at the tug $1\frac{1}{8}$ inches. This gives a spring to the shaft which cannot be obtained in any other way, and this springiness absorbs the knee motion without conveying it to the body of the carriage. Before commencing to round up the shafts care should be taken to get them to the proper shape, to see that they taper gradually from the bar to the hind end and to the tug, that there are no lumps or sudden transitions from straight lines to curves. All the lines behind the bar should be straight and the curves in front easy. If the shafts are carefully rounded up they will, when finished, present a workmanlike appearance. A gig, or similar seated two wheeled carriage, is a difficult one to properly adjust so that the weight will be so evenly balanced on the axle when the gig is occupied as to leave about five pounds weight on the shafts at the tug. Many two wheel carriages are so ill mounted that the shafts are at a sharp incline, and the occupants are displaced in their seats. To secure comfortable riding the gig should be specially adjusted to suit the weight of the user, for all persons are not alike in this respect, and it is a test of good judgment in the disposal of weight when a gig is properly balanced to carry a certain load. A difference of half an inch in the position of the axle, while leaving the general appearance unchanged, except to close observation, will make all the difference between failure and success in the hanging. The method of hanging, the weight of steps, stays and the ironwork, and the disposal of it on the body, all these have to be considered in fixing the position of the axle. The shape of the body and position of the seat, whether weight is thrown forward or back, renders it impossible to positively locate the position of the axle under all conditions. The one condition that should be aimed at is, that when the gig is loaded it should stand level with not more than five pounds on the support under the shafts.

REMARKS IN CONNECTION WITH WORKING DRAWINGS.

In the description of the working drawing of the cabriolet on page 446, the designer has introduced a new rule, one which he claims to be superior to and in advance of all others. His claims and reasons for the same are given by himself, as follows, and we ask carriage draftsmen to give him audience and honestly compare his rule with those rules now commonly accepted as correct:

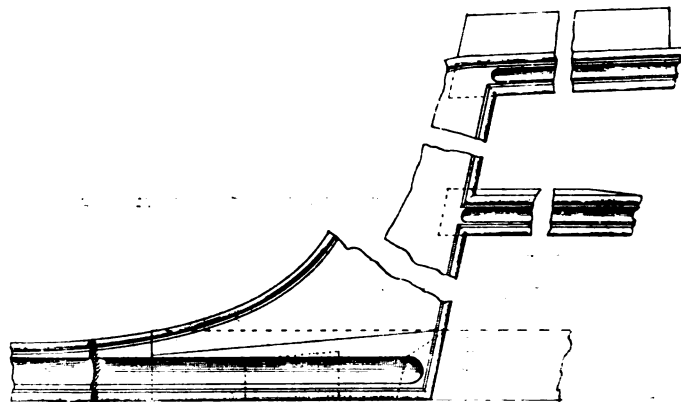


DIAGRAM SHOWING BEADING TO PILLAR AND SEAT OF GIG.

What we wish in the explanation of the working draft of this cabriolet body is that it mark an epoch, a point from which to begin, to cast off the rust of time, as it were, and thus reveal the polished brightness underneath. There never was a time when knowledge was so dear, nor a time when the facilities to furnish it were better than the present, notwithstanding the means to possess it remain obscure and far beyond the reach of the great majority of workmen

of the world, and in our country there is but one technical training school to teach the greedy thousands of carriage makers the science of carriage drafting, the knowledge of which makes one man superior to another. We propose to the best of our ability that you shall have an opportunity to acquire it and we will guarantee not to lead you astray.

In the first paragraph of the description of the working drawing we presented a scientific fact, that never, to our knowledge, has been treated in the works of any instructor on the subject of body making. Never before has it been advanced as a vital point; that it never has been published by any writer upon this subject, or if it ever was, it was too obscure or so far removed from the public eye as to have been lost to public attention. What we have said and what we are going to say now, is that: In a round line body like the one shown, the point where the bottom touches the base N, P, is also where the side sweep Q, of the plan must touch the tangent Z, and when these so meet the appearance of the body will be so improved that this will be accepted as a scientific rule by the craft the world over.

We gave this as a part of the system of laying down the plan of this drawing, and we contend more explicitly now than at any previous time that the side sweep (the longitude curve) determines the vertical curve of the sides of the body, that when the side sweep of the body is laid down the turnunder is then created, or generated; that is in the plan where the turnunder originates, it is not an independent line, but is a part of the side sweep, and is therefore generated by the projections upon the horizontal plane. It is not necessary to go back some fifty years or more to see what others have done so long as what they did is now lost to the public eye. That it was excellent we have no doubt, but since the art and practice of body making is no more related to the conical sections than it is to the sides of a ship, or to that of a barrel or any other curved figure such as are familiar in geometrical drawing, it is advisable, and it is pure common sense to stick strictly to the carriage as it is, to its own form, not to that of a chair, sedan, ship, barrel, cones or any other curved figure, and since the system here explained is as new and as original as any that has ever been employed or applied in the construction of a drawing of a carriage body, it will be necessary to show why it is an improvement and why it is simpler than that of discounting the turnunder from the side sweep, or discounting the side sweep from the turnunder of the so-called Zablot system, or the "square rule," or that of the "French rule," or the "conic section" system of Matthews of England, and many others, all of which have mixed in with a small amount of principle a great deal of probability and guesswork. With the systems which we have mentioned every imaginable suggestion has been tried, to either improve the appearance of the body or to simplify the construction of the draft, and the reader knows just about how far we have progressed in this unscientific procedure. Whatever of truth there is in them ought to be learned in about thirty hours, if we take out all that is false, all the nonsense, such as the "cheat line" delusion, the regulation of the side surface mystery, the discounting turnunder theory. These out what remains is the plain truthful principle which a man of common sense can master in thirty hours instead of about ninety days.

The system which is supposed by those not well informed carriage body makers of the United States to be the rule in general, is the one in which the turnunder line V, Fig. 2, is drawn independently of its effects upon the complicated construction of a round line body, the process of such a procedure is, that every point of projection, less than the side sweep, is determined by a curve drawn upon the vertical plane, and to this curve, at each point of height, the space between the curve and its tangent, must be carried to the plan and set in from the horizontal curve, directly below the point of the side to which the point taken belongs, and that this process will then point the direction of the line T, the lower outline of the body. Any sensible man ought to learn this in twenty minutes. It will, however, spoil the appearance of any body to which it is applied and has spoiled hundreds. Of what use is this turnunder line, as drawn in Fig. 2, in establishing the front view, Fig. 5, or the rear view, Fig. 7, or that of Fig. 3, or of Fig. 4? The rear view of this body, Fig. 7, was never determined by the turnunder of Fig. 2, but by the side sweep of the two lines, Q and T, of the plan, where we are master of the width of the body at all points of its length and at all points of its height. We are told by some of our writers on the technical treatise of body making, that to know how to establish the turnunder line, we must have good taste, good judgment, long experience, and an extensive practice in the art of guessing at the proper amount. Don't flinch, for it is down in black and white, and is gone into the past as history

of the science of coach making in the United States. We never liked it; always mistrusted it, though at times compelled to use it, but always felt that there was something wrong.

Now an angular style of body having a side sweep and turnunder, whether this turnunder is circular or the other shape, makes no difference. This system of drafting the projection of its curved surfaces will be as satisfactory and beautiful as the projections here shown. It is the same with the brougham as it is with the cabriolet, and there is no draftsman or body maker who can show reasons against this proposition. For example, let us suppose that in commencing a draft like that of the side, Fig. 6, that we decide to give a turnunder of 5, 5½, 4¾, or 6 inches, or any other amount that will be different from this draft, would not the rockers be wider across the front, or would not the bottom side at the foot of the pillar be too wide or too narrow, or would not the width across the back at the elbow be either one way or the other, too much or too little, as the case might be? And how can a mechanic construct a curve for a turnunder that will project an edge like that of T, the lower outline of the body? If he thinks he can let him try it on an English quarter phaeton; that is, let him first draw the side of a curve surfaced English quarter spider, or victoria body, and develop the side surfaces in plan, and from this plan project upon the vertical elevation its true dimensions as we show in Fig. 7. He will then discover that while this is simple, now that he knows how, his development of his English quarter design is another problem, and after doing this any body maker in any part of the world will acknowledge that this system of drafting is new, but that as he is not acquainted with it he will of course immediately denounce it as all humbug. But when we show how we proceed with the angular style victoria body he will agree with us that it is a good and practical method of doing the work, while it produces a more beautiful body. As the victoria body will be just as different to those we are accustomed to see, and such as is common in every section, as this cabriolet is superior to those we see every day, nine out of ten of which are not worth a second glance, for no matter who builds them they all look about the same; all broughams look alike. Probably the ugliest carriage on the face of the earth is an extension fronted brougham, unless it is a six seat rockaway.

DRILLING AND REMOVING TIRES.

NOTWITHSTANDING the twist drill has been here more than a quarter of a century, and disregarding the fact that if it gets a little dull and you can grind it without removing the temper, or that you can heat and hammer, refile and retemper, and when the holes are drilled in the tire they are all the same size, clean out and no great sagged "burr" where the drill passes through the tire, there are many smith's helpers, finishers and bosses who persist in using the same kind of a drill as did the smiths of a hundred or more years ago, and in a majority of cases when the drill point has passed through the tire force will be added to such an extent that a sagged burr is formed on the tire which will be forced down into the wood of the rim.

When such tire requires resetting, the trouble is made manifest. The burrs that have been forced into the wood by the drill hold it to such an extent, no matter if the tires be loose enough to require resetting, it is no small task to take them off.

To overcome this, have a few square irons, enough at 12 inches long, to go around your wheel, leaving a space of three or four inches between the thickness or dimensions, to be determined by width of the tire, if wider the rim is apt to be injured, that is, the paint. Place your wheel on the tire plate face down; heat the irons to a medium red heat, and place them against the tire, when the latter is hot enough they will come off fairly easy with a little pounding with a wood mallet made for that purpose.

SUPPORTING RIM JOINTS.

SINCE the introduction of the bent rim in the latter part of 1847, the devices that have been invented and applied to hold the joint and thus present a depression at that point, have been many. The first was the rim band, usually 1 1/8 inches wide, made of about No. 14 "Russian" band iron. At the first they were made square, or nearly so, to suit the rim. Then someone conceived the rounded rim, which had as many shapes and depths almost as there were carriage builders. Then followed the rim plate, about 1852 or 1853, always the same size no matter what the dimensions of the tire rim or tire bolts, of 5/8 inch, No. 10, band iron. Later on came the square end concave malleable cast iron plate, which began swelling at the center until they

reached the present sizes and shape, about thirty years ago. The late J. W. Lawrence, of Brewster & Co., invented a bolt, with an elongated straight edge and flat top head, convexed on the under side, which same was let in the rim and the ends about $\frac{3}{16}$ inch long, turned down and also let into the wood.

This affair did not stop the depression. The removal of the point from the counter to near one of the spokes was tried. It looked odd and inharmonious, and was not a great improvement, and soon dropped out of use. The best and most effective agent has been the present steel concave plate, extending well up the rim.



There is no doubt but that much of the depression has been due to too little metal in the tire, for the amount of wood employed. The spoke tenons have, in many instances, been too large for the rim, which has allowed of the springing of the rim at the center. We had one builder in New York of such a scientific nature that he would not remove as much timber from the rim at the joints as at the other spaces between the spokes. He met with a little success, but not enough to warrant the expense. Rim plates with a net in the center were used. One trial usually settled their case. Plain plates have been let in under the tire, but failed to be of any value, except as a noise maker and rattler.

The writer has concluded that there is but one method by which the rim can be held up, which is as shown in the accompanying illustration. A, the upper surface and post next the tire; B and C, are their webs which form the recess; D, the rim; E, holes for tire bolts. The webs B and C are quite $\frac{1}{8}$ inch over all; the plate is $\frac{1}{16}$ inch thick, which permits of a projection from the rim of $\frac{1}{16}$ inch, both forming a channel $\frac{1}{16}$ inch deep, which are let in the edges of the rim. The plate A, remains enough above the rim for the tire to form a compress. The channel is charged with white lead and then put on the rim. The ribs add strength to the plate, and under ordinary circumstances, will hold the joint up. Pressed steel plates for light work, and wrought iron for heavy work will fill the bill to satisfaction.

LETTERING AND ORNAMENTING BUSINESS WAGONS.

LETTERING business wagons is a feature of the sign writer's art that is, to a certain extent, separate from the ordinary work of sign painting or lettering. It is a branch that requires more skill to execute, and a certain degree of neatness that is not demanded in the general work, and as the time is nearly always limited it is necessary to acquire speed to become proficient in this line. Many make a specialty of this work and become adepts at it; but as it consists principally of lettering, few of the fraternity will admit that it is but the ordinary work of the sign painter. However, as this is a matter of opinion, we will assume that all practical letterers are competent in the art in this branch, as well as all other branches.

The system of lettering as practiced among the different tradesmen is perhaps as varied in this work as it is in many others, each having some pet style of working and each claiming for theirs a superiority over all others; but as we are not constituted alike, and all have our hobbies, we suppose that each one working for the same purpose and the common end must, to a certain extent, be right. There is nothing difficult about the system of lettering and ornamenting business wagons if it is understood and executed with neatness; but if this latter point is overlooked the work will be a failure, for no amount of skill will tend to disguise work that is done in a slovenly manner.

All who have had experience in the business have met men who, although considered inferior workmen, possessed a neatness and gave their work a charm which made them superior to many who were far more competent in the formation of letters, yet were inclined to be slovenly in their work. In no branch is this so apparent as in wagon lettering, for in nearly all cases the work executed by the carriage or wagon painter came up to a certain standard of excellence, and any lettering, shading or ornamentation done in a careless or slipshod manner is more easily detected. This is perhaps the greatest fault a letterer may have, and one may be pardoned for mentioning it here. In the mixing and in the application of paints and colors

there will be found a vast difference from the usual method, as applied to signs or sign work, but as the boss or foreman of the wagon shop usually looks after the lettering it is done under his direction, and although many artists feel hurt by his dictation, we assume that he is right in this, as he is responsible for the work when completed, always presuming he is a workman and understands his business thoroughly. There is not any great difference in laying out the lettering on a wagon top than there would be on a sign. On a panel, it is necessary to be very accurate, however, as the least deviation in a line can be detected at once, and will outbalance any other good features the work may be possessed of.

The workman often finds himself in something of a quandary in deciding just what color or combination of colors to use on some particular job he may be called upon to exercise his skill, and this is especially the case when the job is one that he seldom has occasion to deal with. The writer recently saw a business wagon that looked rather neat and attractive, and the belief that a brief description of the colors employed, style of decoration, etc., may be of some interest and practical benefit to other workmen, must be the excuse for giving the following details:

The large panel was painted a dark wine color, glazed with carmine. In painting the groundwork of this panel Indian red combined with drop black was used for the first coat and followed by wine color darkened a little with drop black. The next panel below, or middle one, was painted black, and the bottom one glazed with carmine on a groundwork of vermillion, darkened a little with tuscany red. All mouldings were painted black. The letters and ornamenting on the large panel were gold leaf, the ornamentation consisting of a light scroll in each corner, connected by a single stripe of gold leaf one-eighth of an inch wide, and extending around the panel three-quarters of an inch inside the moulding.

Letters were shaded with a mixture of white and raw umber, two shades being used; that at the bottom of the letters being several shades darker than the sides. Cream color was used for high lights. All other striping on the body, which by the way was not applied very profusely, being white fine line.

The gear was painted with white, slightly tinted with raw umber, making what might be called pretty nearly a pearl white. This was striped with black in double lines a little less than one-quarter inch wide, the stripes on sides of spokes extended from hub to rim. As before remarked, this combination of colors and treatment produced a very pleasing effect, neither gaudy or sombre, but a happy medium between the two.

One of the cheapest and quickest ways to letter rubber duck is with aluminum bronze. The quickest drying size adheres well to rubber, and as all know, the quicker a size is made to dry the less stability it has, but rubber has an affinity for all kinds of varnishes.

To make a size suitable for aluminum bronze, take any of the sizes suitable for exposed gold leaf work; color it as near the color of aluminum as possible with white lead. When the size is dry to a sufficient "tack" to take the bronze, instead of pouncing it on, take a soft cotton rag, being careful to select one that has no ravelings, dip into the bronze and rub on. By this means the bronze may be pressed into the size, thus giving a more permanent job. Polish by rubbing with cotton or cotton rag. Very pretty business wagons ornamented may be made by blending into one or two of the colored bronzes one characteristic which cannot be attributed to any other bronze. Even gold leaf does not equal it in this respect; for all know that gold leaf will tarnish and assume a copper color under certain conditions; but there is no ordinary exposure which will tarnish either aluminum bronze or leaf. It takes a high polish and one that will last, and when put on with a good white lead size will last as long as the top.

One of the difficulties which confronts the workman, in lettering the side of a wagon, is the arrangement of the letters. A mistake frequently made is in making the lettering too large. The size of the letters, to a great extent, should be governed by the number of letters used. If there are only a few letters, they should be somewhat larger than if there be many. In any case, whether the letters be few or many, the smallest letter in the sign should be no larger than will admit of them being read at the greatest distance that mostly occurs in the everyday business of the wagon, which would be the farther side of a broad street.

Six or seven inch letters are plenty large enough for an ordinary size business wagon, while three or four inch letters will do for the balance. Figures denoting price, number of articles, size, etc., are usually the most important part of a wagon sign; therefore, it seems

they should be emphasized by making them larger than the explanatory words preceding or following; but house, telephone or street numbers, etc., should be of the same size as the lettering.

In cases where it is desired particularly to call attention to the number of the house, the figures should be quite large as compared to the lettering and ornamenting, except the leading words, of which there are one or more in every wagon sign. This leading word should be the characteristic of the business. Some business houses pride themselves in the name of the firm, considering it as the drawing card in all their advertising, while others rely on some other feature as an advertisement, but whatever characteristic it is the painter should ascertain what it is, and govern himself accordingly. By so doing he will satisfy his customers better.

SEAT FALL.

FIG. 1 illustrates a design for a seat fall suitable for large surreys and extension top phaetons. The fall is made on a stiff backing, one piece of thin black canvas and a piece of buckram well pasted together. The curve lines at each end of the fall are made of a piece of thick top leather cut $\frac{3}{8}$ in. wide, pasted to the rough lining.

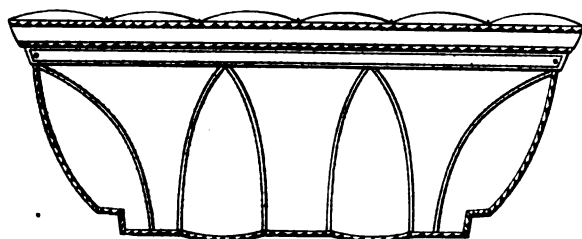


FIG. 1. SEAT FALL.

Make patterns of straw board for the center pieces and mark off on the buckram in proper place. Cover with thick wadding. Cut away the wadding from the edges and around the leather pieces and the pattern marks. Apply paste around the leather pieces over the pattern marks, and around the outer edges. Draw the cloth over and press down about the pattern spaces and keep in place with the straw board pieces with pointed tacks around the edges. Work down the cloth around the edges of the leather strips and around the outside edges. Make the two center pieces on a piece of duck canvas, which has been sized over with paste, to stiffen it a little, shape the canvas out to the size of the straw board patterns.

Cover the white surface over with thick wadding, trimmed away from the edges; apply paste around the edges to a space of $\frac{3}{8}$ in. wide. Place the cloth over the wadding and work down around the edges and paste over on the back of the piece. Paste the back surface over, but not too near the edge. Remove the straw board pieces and put the pieces in place with pointed tacks around the stitching line near the edge of the pieces and let them remain in until the paste is dry. Finish the edge of the fall with pasting lace.

Make the backing for the cushion front of thin hard wood, with the edges well rounded off. Back the board with thin canvas, cover the front of the board with wadding, draw the cloth over in a loose manner. Make the cushion with seaming lace.

SIDE QUARTER SQUAB.

FIG. 1 illustrates a design for side quarters for open panel work, one that is neat and inexpensive. The work can be made on a rough lining, or on the panel. Give $\frac{3}{8}$ in. fulness between the tufts each

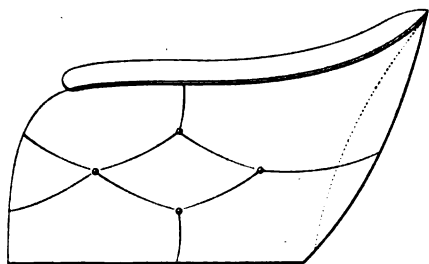


FIG. 1. SIDE QUARTER SQUAB.

way, stretch the tuft lines near the edge on the wrong side of the goods.

If the squab is made on the panel, cut off the eyes of the tufts and secure the tufts to the panel with a small concealed nail driven

through the center of each tuft. Turn the cloth at the lower part of the squab neatly under and fasten it to the seat board with lace tacks. Finish the top of the squab with a smooth plain roll.

This style of quarter squab is very suitable for light victorias, surreys and ladies' driving phaetons, and will correspond well with most any style of tufted work, although the squab can be quickly made and is inexpensive in material. It does not have a cheap appearance when the work is neatly made.

CABRIOLET OPEN TOP.

THE cabriolet with open top is a different class of vehicle from any other having open top, and to make the top in the same form and manner as an ordinary buggy top would be out of place on this class of cabriolet.

This open top should have a finish about it quite different from the buggy top, and fitted in every point for that highest grade of light work.

The accompanying illustration, Fig. 1, shows points of finish about this top worthy of notice. A part of the inside of the top is shown with a side view of the head lining, back stay, and a part of the back bow.

Before taking the head lining to the bows, tack to the bows a piece of linen or sheeting (muslin or cotton goods will not answer), cut three inches wide, that has been pasted and folded, in the center, with the two parts well rubbed together, and tacked out with the selvage on a straight line. When dry the pieces are ready to be tacked on the inside of the bows $\frac{1}{4}$ in. above the side quarter marks. The head lining must extend at least one inch below the linen pieces to form a cover over the edge of the dust cloth. (See dotted lines in the illustration.) Paste the head lining to the linen piece not over $\frac{3}{4}$ in. from the selvage or the paste will show on the head lining. Tack seaming lace from bow to bow, on the side and around the back bow. The seaming lace on the side must be far enough from

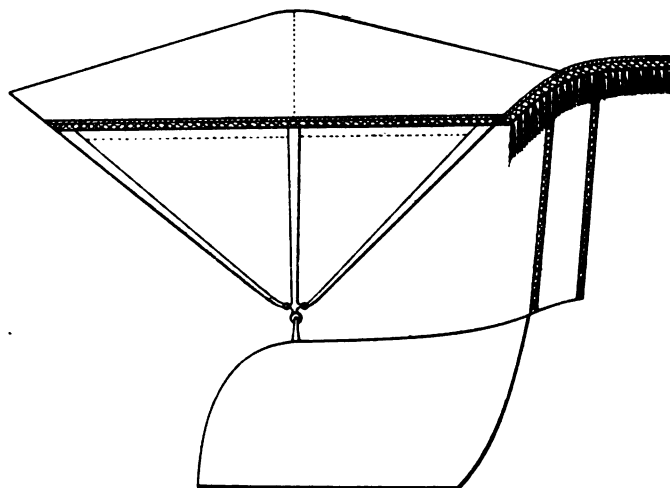


FIG. 1. CABRIOLET TOP.

the selvage of the linen stay for the width of pasting lace. Sew the seaming lace to the head lining and stay with a good thread and short stitch; sew the pasting lace close to the bottom edge of the linen stay, and paste and turn over and work up close to the seaming lace.

After the dust cloth has been pasted to the linen stay and the bottom of the head lining turned over the lower edge of the stay on to the dust cloth, stitch the pasting lace neatly to the seaming lace and dust cloth.

A good silk fringe can be made with thick threads and close woven border $2\frac{1}{2}$ in. wide, suitable to fringe around the back bow; the border of the fringe being sewn to the outside of the seaming lace; sew seaming lace to each edge of the back stays, the lace and edge of the stay. Blind stitch the cloth over the stays to the lace. Bind the bottom of the side quarters with plain binding leather; the space between the binding and the upper row of stitching ought not to be more than $1\frac{1}{2}$ in. wide, with a close creased line on each side of the stitching. Make the side storm curtains of very light leather, or rubber cloth, lined with light weight cloth.

WE are informed that *Der Motorgan* of Berlin, Germany, will no longer be recognized as the official organ of the Mitteleuropäischer Motorwagen-Verein of Berlin, and that the society will begin the publication of their own journal on January 1st, 1902, under the title of *Zeitschrift des Mitteleuropäischen Motorwagen-Vereins*.

WHAT IS A "RUNABOUT?"

THE HUB, in its desire to retain an individuality in carriages, has persistently adhered to the use of original or generic names. When there was a departure from this rule, it has been due to unwillingness on our part to change a name that a manufacturer may have selected, even though that name was in direct opposition to our position. In December HUB, in our notice of the Horse Show, we made some pointed remarks regarding the "runabout," and because of our use of the name "runabout," in connection with an illustration that appeared on another page, we have been written to and asked to explain our position.

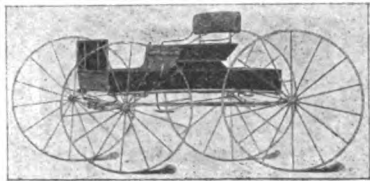


FIG. 1.

At no time have we allowed a misuse of the name in THE HUB, when applied to a drawing made in our office, and whenever we felt at liberty to do so we have quoted "runabout" when applied to vehicles that we did not recognize as such.

We unqualifiedly disclaim all right to change a name the builder may have given, and by which, through his illustrated catalogue, he has introduced it to buyers. The builder has a right to call a farm wagon a road wagon if he sees fit, and if we illustrate his vehicle we must use the name given it by the builder, but by so doing we do not surrender our right to combat such a misuse of names.

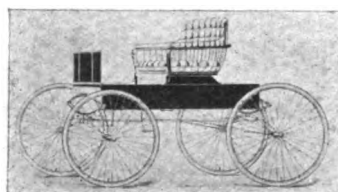


FIG. 2.

The name "runabout" was first popularized, so far as we are able to learn, by Rufus Stivers, of New York, in connection with a buggy having a square box body, being upon the Tilton patent gear. The inventor of this gear aimed to produce a buggy that should have a square box body, of extra length and hung low, without reducing the height of the wheels or lengthening the gear. To accomplish that he cranked his axles downward, setting the cranks quite close to the shoulders of the axle arms, and from the rear cranks attached branches to which the side bars could be attached, and at the same time overcome the drop of the front axle by the use of a long head-block of iron, the ends turned so as to support the forward ends of the side bars at the same distance apart as they were on the hind

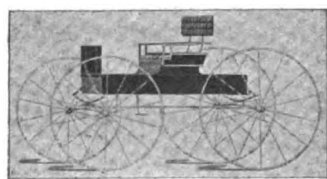


FIG. 3.

axle. By this arrangement he was able to hang the body low on cross springs, and yet have ample room between the bottom of the body and reaches, axles and head block to allow for the movement of the body without coming in contact with each other. This was the first gear constructed on that principle, and the patentee met with much opposition from the leading builders, and was told that light cranked axles were not practical and would prove a failure. Mr. Stivers thought otherwise, and because he did he put the Stivers-Tilton runabout on the market as a first class vehicle, and the result proved his faith in its practicability and it quickly became one of the most popular carriages that was ever put on the market. While the name given it became a new one in vehicular literature,

and notwithstanding it was copyrighted, it has been made use of indiscriminately by builders, who saw in "runabout" a catchy name that would aid in selling carriages.

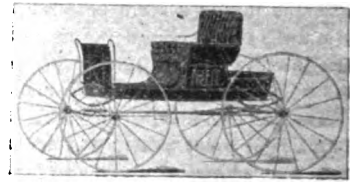


FIG. 4.

The true runabout is illustrated by Fig. 1, as originally built by Mr. Stivers. Its long square deep side body is hung low upon the cranked gear, with side bars attached to lugs on the main axle, and at the front to a long head block, with ends curved in, while maintaining the high wheels, and without lengthening the gear without a top, making a radically new vehicle, in the buggy class, and one, as we have previously stated, appealed quickly to the lovers of a comfortable buggy, and its popularity gave value to the name, and soon manufacturers began the manufacture of "runabouts" without con-



FIG. 5.

flicting with the Stivers-Tilton patent. How extended the use of the name, and how little the designation compared with the original, or the lack of any consideration on the part of the users, as to the character of the vehicles so designated, is shown by the illustrations herewith, every one of which, together with that of Fig. 1, are reproductions from manufacturers' cuts as printed in their catalogues. Fig. 2 illustrates a style designated as the "pneumatic runabout." This designation could not be objected to were the parts, other than the wheels, of the runabout type, but they are not; the axles are arched for the purpose of raising the body from the ground, instead of being cranked to bring it down. Side bars and cross springs are



FIG. 6.

dispensed with, and elliptic springs are used instead, and the square body is hung between the springs, necessitating a long gear or a shortened body.

Fig. 3 shows a square box body hung upon a double perch iron and wood gear and elliptic end springs, a gear that bears no resemblance to the runabout gear, one without a feature that has not been familiar for fifty years or more, and if the novel seat was replaced by a plain board seat the vehicle would be, with the exception of the body hanger, a duplicate of the piano body of thirty-five to forty years ago.



FIG. 7.

Fig. 4 shows another "runabout" in which there is not a single trace of the true runabout. Here we have a body designed somewhat upon the lines of the Concord but differing materially from it on a double perch, plain wood gear, with elliptic springs, the body hung

upon iron body hangers. It, as we have said, bears no resemblance to the true "runabout," neither does it follow in the lines of Figs. 2 and 3, although the gear is much the same as the gear of Fig. 3.

Fig. 5 shows a buggy of the Corning type, and which could with propriety be designated by that name. It too is entirely unlike the runabout, there not being a single feature that would entitle it to be named as it is, and the plain gear could be used on either Figs. 3 or 4. Without a change of the name "runabout" thus applied is a misnomer of the worst character.

Fig. 6 shows another vehicle of a radically different type. Here we have a deep side body with cut down front, heavy pillared seat, an old style wood gear with wood spring bars, the gear six inches longer than the runabout and the body six inches shorter, a carriage that makes the use of the name given it, "runabout," a farce.



FIG. 8.

Fig. 7 brings us up to another style of construction, a body of a style unlike any that have been noticed previously, and as unlike any or the so called, as it is of the real runabout. In this we have the long side springs of the Concord type attached at the front to a long wood headblock, and without reaches connecting the axle and headblock. Not a solitary feature of the body or gear, except the wheels, being like the original of the name.

Fig. 8 is another illustration of the ridiculous use to which the name is put. It is unnecessary to do more than refer to the illustration to learn how ridiculous the designation.

We might drop the subject here were it not that the builders of automobiles have taken up the name and rendered its use more than

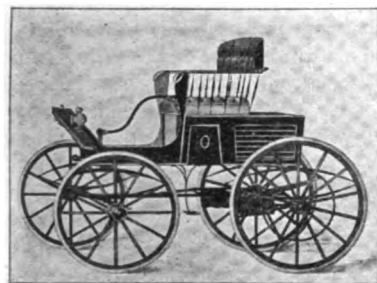


FIG. 9.



FIG. 10.

ever ridiculous by applying it to vehicles that are without the slightest claim to the name, two of which are shown by Figs. 9 and 10. We doubt if in all the vocabulary of vehicles there is another illustration of the misuse of names that is so radically ridiculous and uncanny, and while THE HUB may not be able to prevent the misuse of the term "runabout," we wish to place ourselves squarely before the trade in opposition to the indiscriminate and senseless use of the term runabout, and of others but little less juggled with, notably the "Stanhope."

MEDIUM GRADE CARRIAGES—HOW TO MAKE THEM.

Most things are easy to do if one knows how to do them. This includes the making of medium grade carriages and buggies. The experience of many unsuccessful carriage builders, however, who have attempted to foist upon the market an article that had been heralded by word of mouth and printer's ink as a high grade job at a medium grade price, will doubt this assertion.

When I say the making of medium grade buggies and carriages I also mean the making of them at a profit which will secure to the manufacturers an easy conscience and a satisfactory bank account.

The first requisite demanded by the wholesale builder of this class of work is a crew of men who have had the proper training. There is no getting round this part of the business. It is right here where the unsuccessful builder slips up.

In training or selecting men to be trained for this class of work, natural qualifications come first. The bungling workman, no matter how rapid he is; no matter what his ambitions are, nor how close he

applies himself to the task in hand, has no place in the medium grade carriage shop, even were he to work for nothing. The foreman of each department must be a man who knows his business; this goes without saying. To know the business they must have the proper training, and to this training must be added executive qualities of a high order. Thus equipped the foreman is a master mechanic, who is capable of conducting his own department without interference in or outside of his own bailiwick. He takes his orders from the superintendent, with whom there must be a mutual interchange of ideas respecting the work. This last mentioned individual, who must possess all the qualifications enumerated as indispensable for the foreman, should be graduated from some one of the departments, preferably the painting department.

Although there are many capable superintendents who have advanced from the other departments, there are good reasons, which will appear later, why a superintendent who has been a practical painter can secure better results than one who lacks the technical knowledge that a paint shop training imparts. In the first place, the foreman painter who has filled acceptably the position he holds in the wholesale factory where medium grade work is built, possesses specific qualities, the first of which is a well developed artistic sense. This is a natural talent that proper instruction has developed.

The very nature of his calling increases his productive power and originality of expression along lines that appeal to the carriage buying public. His studies in practical geometry as applied to carriage building prevents his straying beyond arbitrary mechanical bounds, and lends to his work harmony of style, lightness and strength. Many an excellent idea has been spoiled because the originator has lacked the practical mechanical training combined with artistic talent.

The painter who aspires to the position of superintendent should have made a study of suspension and proportion, which includes what we will call, for want of a better term to explain our meaning, composition. This means the proper placing of the different parts and their relation to each other; their importance one to the other in carrying out the design, which to be effective must be taken in at a glance. If thus equipped he is eminently qualified to select and determine what trimmings are most desirable for each job, basing his choice of material upon his knowledge of what will harmonize with the prevailing colors of the painting, the use the vehicle will be subjected to, and the price for which it can be sold. In a word, the whole scheme of construction and color, of the finished buggy, or carriage, gives to the job an individuality peculiarly striking and attractive.

His strong point is in understanding thoroughly in what condition the job should be before it enters the paint shop. It is at this juncture that many an otherwise capable superintendent makes a serious mistake, one that costs the builder more money than he has any idea of, and stamps his work as "snide."

Of course the parts of a buggy or carriage enter the painting department at different periods of time, the wheels may be months before the bodies, or vice versa, the carriage parts the same.

Now the first thing the painter who has received his training in a decent carriage factory learns is to know what a proper surface is. He must know when the job is in a proper condition for the application of the priming coat, so that the subsequent coats may insure durability, brilliancy and wearing qualities. That is his first lesson, and unless he learns it he will be at all times relegated to that class of workmen termed slouches and daubers.

The carelessness and want of knowledge on the part of the woodworker, or smith, causes a world of trouble in the paint shop, and seriously affects the appearance of the finished work, besides adding to the cost of the job by reason of the extra labor and material necessarily applied in the paint shop, to overcome the defects, to say nothing of the consequent delay, and when it is considered what eleventh hour tinkering and attendant cost, if the job is botched, there is additional reason for having the work done in a proper manner in the first place.

The arguments of the wood worker and smith, who, incapable through lack of practical knowledge, or through carelessness and want of loyalty to their employer's interests, are, that the time saved in their departments is of more consequence than that spent in the paint shop, patching up their shortcomings.

That the very factories whose output meets with a ready sale, and whose cost of production is much less than that of many, employs a policy just the reverse of that championed by the incompetents, disposes of that question.

It takes no more time to surface a panel on a machine if the latter

is in a proper working condition, rigid and true, than it does on one that is twisting in its motion; in fact, the time consumed is less. But, if the man who operates it has not been taught properly he will spoil the work even on the best of machines.

The same is true of sand belts, the careless or ignorant workman slashes away regardless, whether he is tearing up the surface with a coarser grade of sand paper than the work demands, utterly indifferent to the fact that the glue or cement has softened and formed particles of the sand into hard lumps that cut and gouge across the grain of axle case, spring bar, or whatever part he is supposed to be smoothing up.

These cross strokes defy the efforts of the painter to conceal with putty, or reface with sand paper. Mrs. Partington of illustrious memory, once said that comparisons are "odorous." Possibly they are, but sometimes one can "point a moral or adorn a tale" with them. The writer was employed at one time in a wholesale factory where medium grade carriages were built, which were, in fact, all the name implied. This factory was run to its full capacity the year round, and no trouble whatever was experienced in selling the work at a handsome profit. The workmen had been selected with an eye single to their ability to perform the task assigned them. The men who got out the material for the body builders kept their machines in good shape all the time. In cutting laps, getting out sills, posts and seat frames, they were not satisfied to come within a quarter, an eighth, or a sixteenth of an inch, but cut them exactly at the right spot. Twisted stock was not forced into shape with the vain expectation that it would hold in place when placed in a body. All the bevells and squares were cut true, not one or two in a dozen correct and the balance near enough, but all were right, because it was just as easy to have them right as otherwise, if the man who operated the machine understood his business.

The men at the sanding machines were dexterous workmen. The body builders handled their work with expedition, no delay or time lost in attempting to make misfits come together, no straining to take the twist out of a sill to square their work. The boy who made the boot frames followed his pattern, any one of a thousand frames would fit any body of a certain size. The cases for the axles were fitted to a nicety, and finished with the grain of the wood, fitting snug up to the collar at both ends, no soap, or glue and sawdust filled flaws, and no holes could be found in their work, to proclaim to the buncled purchaser when he met with a breakdown, that the man who made his carriage had been sweating his coin.

All wheels passed a thorough examination, and the grades that are shunted on the crossroads builder, the cheap concerns and the close buyer of the medium grade factory, whose work was always giving dissatisfaction, were religiously steered clear of this factory.

The difference in the price charged by the factory that made wheels for this class of work was cheerfully paid, for no amount of work or material employed by the painters could rectify the careless finish of the wheel maker. Neither would one see the unsightly marks made by the slouchy workman in the smith shop, where he had through stupidity placed a clip in the wrong position on an axle case and afterwards removed it.

Hammer marks were absent on rims, cases and bars. Tire bolts were placed in the center of rims, and the edge of the file had not gouged into the wood in leveling the bolt with the top. The felloe plates fitted close to the rims and there was an absence of the splinters at this point that are so very much in evidence in the alleged medium grade factory.

In the painting department the bodies were primed carefully, the priming being rubbed in thoroughly, leaving very little on the surface when dry; the sills and posts of piano bodies, and all the hard wood on the heavier bodies, were glazed.

The panels requiring scarcely any putty, when the first coat was dry, any little omission on the part of the glazer was attended to, and a second coat of roughstuff applied immediately, followed by the third and fourth coats on alternate days, or, if in the summer season, or on hurried work, two coats of roughstuff was given, then a coat of stain, making four coats of filler and one of stain.

When rubbed, not a speck of wood or even priming was exposed, and the rubbing was done in a hurry with large stones when the size of the panel would admit it. After the moisture had evaporated, a preparation coat was applied; this sealed up all the pores of the roughstuff and prevented absorption of subsequent coats of paint and varnish.

If the body was to be black, two coats of color and a coat of color varnish would be applied the same day. The bodies were run through in batches of ten or twelve a day. The number of heavy

bodies coming through would govern the amount of work handled. What were called "heavy bodies" in that factory consisted of four passenger and six passenger phaetons and surreys, hung on perch or half phaeton gears. All light bodies received one coat of rubbing varnish. The finishing varnish showed up full and plump, and retained its brilliancy for months, without sign of cracks in either the color or the varnish. There was no sinking in or dulling of the surface, consequently no kicks and complaints to explain away.

The priming on the under parts of the carriage and that on the wheels was carefully brushed into the grain of the wood, leaving very little on the surface. This was done always before the running gear was ironed, the wheels, of course, being primed in carload lots as soon as received and dried out, after being carefully sanded.

When the work was received from the smith shop, it was cleaned nicely and the gears were glazed. The day following they were sand papered with No. ½ paper. The glazing was done so nicely that it really required no "sanding" except to remove the loose particles of putty that sometimes adhered and dried around the clips. Twenty minutes was ample time to do this part of the work, wheels and all.

The gear was then dusted and an elastic coat of paint was applied with a camel hair brush. This coat was mixed to dry hard in twenty-four hours, but not lifeless, it being the aim to avoid either extreme, too elastic, which would cause endless trouble by reason of the paint cracking, and striking in of the varnish, destroying that brilliancy that is so much admired in first-class work, or, on the other hand, too dead, which would cause the paint to chip and flake when the job was put in service.

The concussions and shocks that the wheels of the average carriage sustains, and the resilient action of the springs on a loaded vehicle when in motion, will test most effectually the clinging qualities of the paint.

We are prompted to make a little digression at this point, to observe that one prolific cause of the many unsuccessful attempts to use a formula for mixing paint, that had given excellent results in one or two localities, is that shop conditions vary so much. Any intelligent painter who has traveled much will bear us out in this particular.

The painter who understands his business can diagnose local shop conditions, and prepare his paint to suit all requirements. Each season of the year calls into action knowledge of what is best under existing conditions, and explains why he is so uniformly successful in the results that follow his efforts.

Taking up the gear again that we left with one coat of green, wine or yellow, was flowed on with a badger brush and looked cleaner and fuller than many a finishing coat we see on so called medium grade work, as care had been taken to use clean paint on a clean smooth surface. This precaution took no more time than if the paint had been slushed on by a careless workman.

The glaze colors showed up solid, free from streaks and clouds, care having been taken that the under coat was tinted properly to bring out the full value of the rich glazing coat.

Then came the striping and finishing. It would have taken a painter that had been trained in a first class custom shop to distinguish the difference between this job and the finish of a high grade carriage.

In striking contrast with this manner of building work, the reader is invited to compare the efforts of those who are attempting to make the same class of carriages, but who are always having trouble, first with one thing, and then with another, but trouble always, until the sheriff knocks at the door.

The cost of the first class medium grade work I have described is much less than that of the factory where they work by the rule of three, although in the last mentioned they reduce the number of coats of paint in the vain attempt to make the business pay a decent profit on the money invested.

AGAIN WITH THE CARRIAGE MONTHLY.

J. CURTIS BARCUS, who represented the *Carriage Monthly* for several years in the West, and who for the last year has been with the *Dealers' Journal*, resigned his position with the latter in December and resumed his position as Western representative of the *Carriage Monthly*, beginning on January 1st, 1902, with the exception of the States of Ohio and Indiana, which are in the charge of his brother, W. H. Barcus. We congratulate Mr. Barcus and the *Carriage Monthly* for the renewal of the business relationship, and firmly believe that the interests of both parties will be advanced thereby.

BANQUET OF THE Carriage, Harness and Accessory Traveling Salesmen's Association.

Delmonico's, New York, Thursday Evening, October 17, 1901.

ELEVENTH ANNUAL CONVENTION.

THE banquet of the C. H. A. T. was given at Delmonico's on Thursday evening, Oct. 17. About three hundred members and friends were seated at the tables, and a large number of ladies were entertained in a smaller dining room. The banquet will long be remembered by all who attended as one of the most pleasant gatherings of the kind. After doing full justice to the good things provided, the tables were cleared and the audience was called to order. Grace was asked by the Rev. John A. Cass.

Mr. Walter D. Gregory, the President: It gives me great pleasure to extend an invitation to the ladies to join us in the banquet hall, and I appoint the following committee to escort them into the room: Messrs. W. H. Taylor, William Rosenberg, William F. Adams, Charles C. Cassell and C. E. Perkins.

(After the ladies were seated, the President continued:)

Fellow members of the C. H. A. T., ladies and gentlemen—friends: We welcome you all here to-night at a banquet of which our association may well be proud, and which, in my opinion, will prove a very important event in its history.

Just ten years ago this fall a handful of traveling salesmen met in Springfield, Mass., and organized the Carriage, Harness and Accessory Traveling Salesmen's Association of the United States. How little was it thought, when the phrase "of the United States" was included in the title, that in ten short years this infant would reach maturity and count among its members a large percentage of the leading and successful "men of the road" in the industry we represent, and that its membership would extend to nearly every state in the Union.

And yet, when we consider its objects—mutual encouragement, support and protection, securing situations for members, informing members through the secretary of all firms of doubtful credit, assisting each other in sales where such assistance does not conflict with the interests of firms represented, endeavoring to obtain better railroad rates, and aiding each other in all honorable ways which will promote the welfare and happiness of our members—we cannot help but wonder why absolutely every salesman in our field is not enrolled on our register. In addition, a death benefit of \$100 is included in membership.

One feature which has been especially conspicuous and successful is our "Salesmen's Clearing House." Manufacturers have been quick to grasp the importance of this department, and many a case has occurred where manufacturers and our members have been brought together through our secretary, resulting in most satisfactory arrangements to all parties.

Our men are all high class salesmen, men who know how to sell goods, men who are respected by the trade they visit, men who are nearly always well employed. Manufacturers need their services just as much as the men need positions.

Both manufacturers and dealers are eligible for associate membership that carries with it many advantages which are well understood and appreciated.

The salesman to-day is one of the important factors in the commercial world. It is he who stands between the buyer and the seller. He is one of the greatest educators of the age, for he travels north, east, south and west, winter and summer, spring and fall, ever on the alert to impart information at all times, in all places, and under all conditions. He has been well called "The Backbone of Commercial Enterprise."

A friend of mine once attended a banquet, and was loud in his praises of the good time he enjoyed. When I asked him the reason for his great enthusiasm, he said it was because they fixed the toastmaster's chair. I expressed surprise and stated I could not see the point. He said, "Why, yes, they put something in the toastmaster's chair; that's the reason we had such a good time." "Well," I said, "what was it?" He replied, "J. Seaver Page." (Laughter.)

It gives me great pleasure, ladies and gentlemen, to introduce, as the toastmaster of the evening, Mr. J. Seaver Page. (Applause.)

Mr. Page: Ladies and gentlemen, I never felt quite so big in all my life. I don't know that I can rise equal to this occasion, because I am one of the boys, and when your president was talking about those high class salesmen, I thought he had his eyes on me, but he was looking at Mrs. Ettling, the only female member of the association.

Now, it was singularly appropriate that I should be called upon, and I am very proud indeed of the honor of presiding over such a cultivated, dignified audience.

I am reminded very much of a story told by my senior partner of his having looked over the bill of a traveling salesman when he turned in his bill of expenses, and there was a "white horse" in it. He said, "What is this? I don't think we can pay for that 'white horse' in the future." When the next bill came in, my partner congratulated him upon the elimination of the "white horse." The salesman had a broad grin on his face, for it was in the bill all the time.

Don't be persuaded that we fellows are going to do all the talking to-night. See this array of talent here, and if you fellows don't have a good time, it won't be because we haven't worked for you. I shall present to you a bouquet of culled flowers, and they are all here—daisies, and the finest in the land—and I shall be content to be the string that binds them together.

The first toast in the regular order is "Ourselves," Francis Bacon to respond. I have the pleasure of introducing Francis Bacon to you, and telling you that there is only one in the box and Bacon got it.

Francis Bacon: Mr. Toastmaster, ladies and gentlemen—The toastmaster, in his opening remarks, said to you that he felt very large; well, he had good reason to, but after what he said, I want to tell you that I feel very small. It seems to me as though this was a little out of character, putting me here, after having given you such a repast, and finishing you up with a little "Old Bacon." (Laughter.) I don't believe you'll relish it at all.

I suppose we ought to apologize for being here, and perhaps we ought to apologize for being in existence. Is there any man or any woman here that ever knew a traveling man to apologize for anything? I want you to eliminate from your minds that I am a traveling man. I have traveled a lot—I have had rubber tire, and I have had steel tire—but I have never stolen any tires. I am glad to say that the army of men which I am here to represent and for which I am to speak—"ourselves"—that is a very delicate subject. I don't like to talk about myself, and that is why I am asking you to eliminate me from that army of men who put our goods before the people throughout the world.

We stand to-day one of the greatest nations on the globe. We stand in a country that you go so far west that when you get through going west you go east. (Applause.) Now, who is it that puts our manufactured goods before the world? Who does this hard work? Who sits up nights and plays poker and cards? It is the traveling man. The toastmaster told you that little story of the white horse. I have had more to do with the white horse, I have had more white horses to pay for, I have probably paid for more white horses than any other man on earth. Well, I suppose I have got to keep on paying for them just as long as the traveling man exists.

There are a good many economic questions that arise as we go through life. There are very few of you who have stopped to consider what an important factor the traveling man is, especially in the carriage trade. Are any of you aware that it takes nearly three millions of vehicles every year to take up the wear of vehicles in the United States alone? Has any one any idea of the herculean task which stands before the traveling man who goes out to sell, and the manufacturer who builds models of beauty and excellence in every way worthy to be used by any and everybody—the King of England or the Emperor of Germany. But it is the traveler who has to be active, who has to go out to put these goods before the people and before the world. As I said before, we have no east and we have no west now. We live in a country that the sun never ceases to shine upon. In the past few years, in the great era of prosperity that has come upon us, a prosperity that has been brought about largely by those of whom we are the guests to-night, we have gone

out and gone on until, gentlemen, we have reached the Orient and the shores of the McKinley Islands. (Great applause.) Dewey said in 1898 they were ours, you all know it and how he gave the boys their breakfast and then went back and went at his work. The traveling men are following him, and we are carrying our goods into the Orient and over the world as no other nation in the world has ever done before.

This is a representative assemblage of the Carriage Salesmen's Association, and among them you find the best men in the world; men who never tire—it don't make any difference whether it is steel, rubber, or pneumatic tire; or any other tire—they never tire; they are always pushing, they give us orders; they give us what we are after, and what you are after, the best goods in the world. (Applause.)

Mr. Page: I think you will agree with me, ladies and gentlemen, that we didn't make any mistake in getting a little old bacon with this dinner. I don't know how the boys got hold of him, but he's the real thing. I shall have the pleasure of introducing to you as the next speaker, Hon. Elliott Danforth, who will speak for the State of New York.

Before introducing him formally, I desire to say that he has been one of the officers of the State, but he has not to go around labeled as a Democrat, because he belongs to that famous County of Schoharie, where the sun never shines on a Republican victory.

He has been recently abroad, and was called upon to deliver an oration in the northern part of Norway on the Fourth of July. He has come back full of Americanism, and like most of us who visit the other side he liked what he saw over there, but he likes his own a little better. Will you join with me in the request that he shall not confine himself too closely to the toast of the State of New York, but tell us what he thinks of his proud position of being an American?

I have the honor of introducing to you Hon. Elliott Danforth.

Mr. Danforth: Mr. Toastmaster, Ladies and Gentlemen: Our honored toastmaster has alluded to the fact that I have recently returned from an extended foreign trip. As a result of my observations in other countries, I am more than ever convinced that our country, our government, our constitution, our laws, our flag, and our people are the best on the face of the globe. (Applause.)

While I was in Paris the wings of the lightning brought to us the sad news of President McKinley's death. The French are an impulsive people, but not since the death by assassination of their own President Carnot have they been so deeply moved as by the crime which brought bereavement and sorrow to a sister republic. Signs of grief were on every hand. The city was gaily decorated with flags and bunting in honor of the anticipated visit of the Czar; but, side by side with the tricolor of France, our own glorious banner was displayed with appropriate mourning emblems. And what was true of France was true in a greater or less degree of every civilized nation. Millions of tearful eyes and throbbing hearts attested the respect, admiration and love which all nations bore to our own republic in the hour of her supreme sorrow.

I consider it a high honor and privilege to attend this dinner to-night given by the Carriage, Harness and Accessory Traveling Salesmen's Association.

Mr. Toastmaster, if I were to talk about the carriages of New York, what could I say. We poor fellows, who are obliged to walk most of the time know little about carriages. Brought up in the country, I used to ride in an ox cart, and often envied the prosperous and fortunate individual who drew the reins over a four-in-hand. When I haven't been compelled to walk, I have sometimes used an old Democrat wagon. This may have been due, as has been stated by our toastmaster, to the fact that I was born up in the old county of Schoharie, where the only reliable crops raised are hops, broom-corn and Democrats. (Laughter.)

As to harness, with my friend Littleton and others, I have been somewhat in political harness for a number of years, and sometimes I may have been charged with kicking over the traces, but I am proud to refute the slander that was circulated by an old-time friend that I once unbuckled the crupper to give my horse an opportunity to drink from a water trough.

Speaking of water troughs, I am reminded of a story told about our great American humorist, Mark Twain, when he lived up in Chemung County, in the part of the State from which I hail. With a view of benefiting the community in which he lived, he resolved to erect a handsome stone water trough at some convenient point for every child born in his family, and inscribe thereon the christian name of the child. As a result of this generous proposition, he erected some five or six of these beautiful troughs. While I was in official life in Albany. I attended a county fair up the State in company with my friend Governor Hill, and the governor related the Mark Twain story, when some one in the audience shouted out, "Say, Governor, what are you going to add to the watering troughs?" The governor responded, "I decline to answer so impertinent a question."

I was greatly pleased this summer to find good roads in nearly every country we visited. This is especially true of France and Austria. We have been paying much attention in recent years to our roads in New York State, and as a result can point with pride to the condition of our highways. The Empire State has much of which it may justly be proud. We are not unmindful that some of its greatness is due to the fact that many of the wisest and the best citizens

of other States—and we have a conspicuous illustration of that in my friend Wise, who is here with us to-night—have from various causes been attracted to our commonwealth.

Our State at every step in the nation's history has played a prominent part. In the days of the Revolution Brother Wise, New York and old Virginia stood side by side in defence of the patriotic principle, "No taxation without representation."

We sent to the Continental Congress our Clinton, Jay, Livingston, Floyd, Morris and Lewis, to meet and confer with your Lee Harrison, Patrick Henry, Nelson, Jefferson, and, greatest of all, the immortal Washington, that man of men whose name and memory grow dearer to us every year. Other names may gather the thickening dust of ages and their memory be forgotten, but that one great and noble name stands like an imperishable mountain peak, white with the snows of the eternal ages, beautiful with the verdure of immortality. Virginia gave him birth, but some of his most important military and civic acts were performed in New York. Here he bade farewell to his army, and took the oath of President. New York gave, to sustain his arm, a Schuyler in the field and a Hamilton in his cabinet. (Applause.)

In the time allotted to me by the toastmaster, I can say very little of the glories of our State, but from her large population and commercial importance and greatness, she is, in truth, an empire, the brightest star in the galaxy of States which compose our federal union.

From the fertile and cultivated States of the East to the farthest frontier of the West, where the pioneer swings his ax, our nation is growing like a young giant. Our pride and joy and glory is, and ever will be, that we have an individual unbroken republic, free from ocean to ocean, with as many States as we can crowd stars into the flag. We cannot, we will not, lose a single star, a single State. Each portion is essential to that perfect arch upon which is written our national motto.

Let us thank God that our temple of liberty is to-day cemented with brotherly and national affection; that our brethren from all sections of the Union sing with joined hands, "A Union of Lakes, a Union of Lands, a Union of States, who can sever?" From all sections of the Union we sing, we join hands and raise a prayer of sincerity that wells up from every patriotic heart, "Give unto us and our children a union of hearts, a union of hands, and a Union unbroken forever!" (Applause.)

Mr. Page: You see, ladies and gentlemen, I told you you would have a good thing to-night. I want to tell you that Danforth is not the only one in the box. We have got a little more coming. We will give you a good time.

The last speaker has happily led my way in saying to you that New York attracts to itself very many people. We have our millionaires, we have our Sugar King, and our Oil King, and I don't know what kind of kings we don't have, but they are numerous. And above all we have attracted to New York the Prince of Good Fellows, John S. Wise. He is worth half a dozen millionaires. I don't want to discourage wealth, because I am not trotting exactly in the socialistic gang, but I want to tell you that the man who contributes more to the happiness of others than anybody else is John S. Wise. The State of Virginia never knew what she gave up when she let Wise get away. If Virginia is the Mother of Presidents, she let a president get away when Wisey left.

I tell you it is good to hear him, it is good to have him around, he brightens up every audience, and I want you to give him a rousing chance, for he is going to talk upon a subject that comes directly home to you, "What Part the Carriage Plays in Civilization." Oh, that's a dandy! I tell you we sat up a couple of nights on that, and do you know, if, as somebody has said, we can talk about the roads being the arteries of civilization, Wisey is going to prove to you that the carriage is the blood that courses through those arteries.

Now let's hear from Wisey.

Hon. John S. Wise: Mr. Toastmaster, Ladies and Gentlemen: My connection with the carriage business has been a sort of movable feast. I began the carriage business in the business of baby carriages—I have bought nine (laughter) and the trouble didn't stop at home. I got into politics, and a man who was voting for me gave me three months' notice that he was going to name a baby after me. At the proper time I sent around a baby carriage, and that afternoon when I returned home, expecting to get a note of thanks. I found the baby carriage in my front hall with a memorandum that that wasn't enough—to send back a double one! (Laughter.)

Well, now, I have gone out of that business. My oldest baby went over to Manila in the regulars and landed there on the 10th of this month, and the youngest is riding.

I believe my next venture has been an investment in the wonderful one horse shay described by Oliver Wendell Holmes, because I come here every night. You know the peculiarity of that vehicle was that it was a wonderful one-horse shay, that ran for a hundred years to a day, and busted up and blew away, without a break in anything until the last. And I pray God that I may continue in the good cause, and I will keep coming these nights with Page until we both drop dead in our tracks.

The business that you are all engaged in is certainly a civilizing business. You are not pioneers; I suppose a man that went out in

the wilderness with a carriage would get left. I recollect once, when I was campaigning in the State of Virginia, I visited the County of Buchanan. It is Democratic, too. It didn't grow hops, broom-corn, and Democrats; but it did grow revolvers, corn whiskey, and Democrats. It was on the boundary between Virginia and Kentucky. It was the boast of that county that it didn't have a county road or a wheeled vehicle in it, and I believe it was true.

You will find, as has been truly said, just as a community is civilized its roads are opened up, and just as intelligence accompanies the first beatings of the heart which are preliminary to the development of the intellect and all the qualities of manhood, just so as the country is opened up and as it becomes accustomed to the accessories of civilization, one of the most important of which are the very things you deal in, it will give evidence of an advance in civilization. You have a charming profession in many ways. Somebody has said here to-night it was remarkable how few carriage dealers got drunk. Well, I don't know that that makes it attractive to everybody. At the same time it is rather a plume in your cap, but yet when you analyze it, what would a fellow meet if he were to try to sell a carriage when he was drunk? You come in contact with the highest and best of every community. You have access to the best elements of the community, except the carriage builder and the undertaker. The carriage builder has a great advantage; people feel pleasant, and he can feel sociable, when he is trying to sell a carriage, but the undertaker has to get up crocodile tears when he is trying to sell a coffin.

The very nature of your profession is that you must keep pace with the advance of civilization. Sometimes civilization is advancing so rapidly that you have very great difficulty in keeping up, with old methods. A fellow who has been selling horse carriages finds it hard to keep up with the fellow who sells automobiles. You remember when they introduced the spinning jenny, it was said that all the old women with spinning wheels would starve, but they didn't; and so when they introduced the sewing machine everybody said the sewing women would starve, but they didn't. So with you. The times change and we change with them. All the old proverbs even are being knocked in the head. We used to believe that the leopard could not change his spots, nor the Ethiopian his skin. There's nothing in it. Booker Washington dines with the President. What's the matter with the change in the skin? If you say that a leopard cannot change his spots, you begin to doubt it when you see the tiger take off his stripes and dress up in Shepard's plaids. (Laughter.)

* * * * *

Keep abreast of the times. Look about and see what it is that is really wanted. Now, I tell you what we want. I want to help your business, and I think that once in a while we outsiders can give you a suggestion. There was a time when a man who went out for a night off thought it a healthy thing to do to walk home and walk it off. Right opposite us on Fifth Avenue there is a house with two strips of white marble that ran from north to south. The old fellow who lived there put them there so that he would know when he got home at night; whenever he got between the two white lines, he was home; it was over the fence and out.

Now, that time has changed. The rush of things is too great to spare all that time walking. We do things more quickly. And I want to tell you that the man who invents something with general automobile characteristics, and a horse top to it, with handles, so that a man can play the game right up to the limit, and when he grows unconscious he may be taken aboard, undressed on the way home, shot right up to his bed, thereby avoiding all the friction of the travel home and the difficulty of getting off his clothes,—that man will make an everlasting fortune, because life is too strenuous to waste too much time about such things. (Laughter.)

Gentlemen, I wish I could be serious on an occasion of this kind. I wish that I could really make the speech that I had coined and laid away in the pigeonhole of my remembrance, telling you what an important part you play in civilization. Oh, it is a great truth!

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And so I say to you that it should be a source of pride and satisfaction to you to know that you are engaged in a profession which is in every way the banner of the highest development of the human race. (Applause.)

Mr. Page: Now, ladies and gentlemen, you see I wasn't wrong when I said we had the prince of good fellows with us. He is indeed also a jolly good fellow.

I have next the pleasure of introducing to you Hon. Martin W. Littleton, Assistant District Attorney of Kings County, who will respond to "Things In General."

Mr. Littleton: Mr. Toastmaster, Ladies and Gentlemen: I am obliged to you for the honor of joining with those far older and wiser than I on an occasion of this sort. I am deeply indebted to the toastmaster, and to Mr. Hedges, who is to follow me, for having discovered me like an island in the distant sea, and brought me forth like a wild flower into the warm breath of civilization.

I have listened to a great many toastmasters, and I have never yet heard one yet who responded with such voluntary genius, with such a willing desire to dispose of each particular circumstance of the occasion, and satisfy the audience and the speakers.

When I speak I have sometimes to write my speeches, or copy somebody else's, but when Mr. Page speaks it bubbles like a mountain spring; he needs no stately phrase, no majestic vehicle for his thought; no strained construction for the communication of his ideas; but when he speaks, he speaks, and that is all, and when he says all he has to say, and everybody agrees with what he has to say as the best thing to say.

I have listened to some descriptions by Mr. Danforth of the community in which he was born, of the county being productive of certain elements of prosperity and growth, of certain things which have contributed to the upbuilding of this government; and as I listened to him describing the civic virtues and the natural products of the County of Schoharie, I could but believe that he was talking of some of the mountain peaks of Tennessee. And then I listened again to the gentleman from Virginia, who, in order to express the opinion that revolvers and corn whiskey and Democrats go together, had to leave Virginia and come to New York. (Laughter.) In listening to all of those things, I felt I did not know what to say when I should arise to address this mingled audience of ladies and gentlemen, and then I thought I heard some one say that now it is fashionable to fuss. It is the rage to reform. It is popular to pick at the existing order of things in general. The head-line hunter is abroad in the land. The man with the hoe fared badly with the man with the hobby. Men sit up late in the night in order to resolve that the world shall be better, and get up early in the morning to resume habits which make it worse.

They start periodical pen and ink revolutions and end in a final flank movement of phraseology and desultory assault with adjectives. They publish a book on theory and fight to the last ditch a contribution of practice. They enjoy dealing with wholesale virtue at large, but scorn the petty observance of it in the detail of their own lives. They are willing to regenerate the world as a whole, but decline to begin at a point obviously in need and within their reach.

I was called upon to speak upon things in general. I have so far spoken of things in particular. I do not know what most I could say, or least I could say—perhaps the latter would please you best. I had thought I would speak of that man who could, without a serious interruption of his business, have so directed the Boer defense as to have forever preserved the two Dutch republics; or yet by the aid of a long-distance 'phone he could have planted the Cross of St. George on every veldt in South Africa. And yet, this selfsame man would have difficulty in finding the car that would take him home.

Then you will find the man who cannot understand how the President of the United States should have any difficulty in disposing of the Philippine question. He cannot see any difficulty in the President having to observe the Constitution, and keeping the Constitution from following the flag; standing by the Constitution, and at the same time standing by the flag. He doesn't see why this thing should not have been disposed of without any difficulty. He is the man you meet everywhere discussing, and discussing learnedly, upon these topics, and yet he does not know whether the Constitution is a written statement or a verbal declaration of George Washington.

Then you will find the man, and he is the same fellow everywhere, who is wild about the way we permitted the Chinese government to treat us in the recent complications in China, and he is in favor of taking an afternoon off and driving the Chinamen into their laundries forever; yet his entire information on the subject of the Chinese question is the knowledge that they have automatic bells in their shops and a vague suspicion that they eat live rats.

He is the selfsame man who cannot get over the way we are treating the rapidly disappearing red men in the West; you meet him everywhere, and he says, "We have mistreated Lo, the poor Indian," and yet he does not know that in Oklahoma Territory, in the western reservations, the Indian still prefers a canine diet to the beef furnished him by the federal government.

Then you find another man, of the same mental caliber, who leans upon the broken past and looks upon its blessed ruin. He says, "It is not to-day as it used to be, the good old days are gone; the men are not so honest and heroic, the women not so beautiful and intelligent as they used to be. And yet when you consult the men who know him, they tell you that he has been balked in his tracks since they knew him."

You will find these men in every walk of life; aye, even in banquet halls, where all is cheer, and pleasure, and glad tidings, and comfort, and great joy. They find great fault with what there is and what is to be. But just the same the world rolls around; it is human, but it is heroic; it is sinful, but it is surefooted; it is not altogether good and not altogether bad; it is a good old human world in which we live, fit for men and women to live in and to love in, and it ought not to be destroyed by men with a tendency to torpid livers and indigestion, or with inclinations to nervous conscientiousness. It is a wondrous world in which we live; a world that, as it marches on in the glorious climax of the twentieth century, is reaching out and conquering, with all its silent, sweet and strong forces, all the dark and undiscovered regions of the earth. We have entered upon a glorious century, one that is resplendent with the growth of the earth, in which Liberty and Peace will walk up and down the nations of the earth, building their kingdom in the hearts of men, gathering a harvest of genius and toil; in which Reason shall strike from the hand of Force the sword of hate; in which mercy will fill the mind with sweet restraint and conscience smite the thoughts of wrong; in which the people of all lands and tongues will be awakened to inspiration by our example, and follow, with the march of years, the luminous pathway leading to that destiny beyond the reach of vision and within the Providence of God. I thank you, ladies and gentlemen. (Applause.)

Mr. Page: Am I not coming near my promise in the early part of the evening, that we are going to give you a good thing? But I want to tell you that you haven't had the best yet. We have some, like old and rare wine, saved for the last. We have only one regret and that is that Mr. Julius J. Frank cannot be with us, owing to a case in which he is engaged in court.

I shall ask you to listen to a few stories from Mr. James S. Burdette, who, I think, will happily fill in any vacancies we may have had.

Mr. Burdette: Mr. Toastmaster, Ladies and Gentlemen: If there is anything that I do enjoy more than another it is a toastmaster who is remarkable for his brevity. Mr. Page is not unlike a friend of mine, a certain reverend gentlemen who years ago presided at a Chautauqua Assembly at Beatrice, Nebraska, and who spent entirely too much time whenever he had to introduce a speaker. I remember once—and I kept time with my Waterbury, which kept very good time then—that he occupied thirty-five minutes to introduce Frank Beard, one of the kings of American chalk talkers. I could see that Mr. Beard was very much disturbed, and I can still hear him say in his quaint way, "I like Mr. Davidson, he is so nice, he is so refined, he is so eloquent, he is so touching, he is so gentle, he is so tender, he is so finished—God knows I am glad he is finished." (Laughter.)

I shall never say I am glad when Mr. Page is finished. He has asked me to claim your attention for a few moments with a few short stories. Now, I find in the matter of story telling, in my judgment, the ladies are the best story tellers of the two sexes, and the men are the best liars. There is a distinction between a story teller and a liar. A lady somewhat advanced in years told me a story not long ago of a man who had been arrested in New York City for striking a woman—the brute! No one but a brute would strike a woman. He was brought before the judge, and the judge said to him, "Are you guilty of this charge?" "Yes," said the man. "Why," said the judge, "I am surprised; you have refined features; you look as though you came from a good family; evidently your environments and your associations from your birth have been of the very best. I don't understand it. Were you intoxicated at the time?" "Oh, no," said the man, "I am not a drinking man." "Were you momentarily insane, then?" "Oh, no; no insanity in my family." "How did you come to do it? I want to know." He said, "Well, Your Honor, for a number of years I have been trying to find out something about spiritualism, and I walked up into this woman's office the other day on Sixth avenue. I gave her three hard-earned dollars, and she went off into a trance. When she came out of the trance she banged her feet upon the floor and screamed, 'Oh, I'm so happy! Oh, I'm so happy!' And Judge, it made me mad. I couldn't help it, but just hauled off and gave her one, and upon my word, it was the first time in all my life that I ever struck a happy medium!" (Laughter.)

So in the telling of stories we like to strike a happy medium.

Surrounded by these delightful patriotic decorations, I am reminded of a story of an Irishman who, during the Spanish war, was at work upon the top of a ten-story apartment house in Harlem, and goodness knows there are others there—to rent. This was at that time of the day perhaps the most delightful to the Irishman, save the hour of night when the whistle blows—dinner time. He had finished his meal and was looking over this tall building when he saw some one two stories below thrust out a flagstaff and then deliberately proceed to pull out a very large Spanish flag. He couldn't stand that, it made him mad—he had been recently naturalized. So he jumped up from his position, ran to the chimney and returned with a brickbat—a slow brickbat, made in Philadelphia—and with well directed aim he let it go. It smashed the flagstaff and tore the flag, and in high glee and pride he went down on the sidewalk to see what damage he had done. There he met one of his friends, who said, "Patrick, begad, that was a good shot. That was one of the best shots I ever see in all my life. I bet you that was a good American brick you threw that time." "Casey, it may have been an American brick, but you bet your life it was of Irish descent!" (Laughter.)

There is another side of the Irishman that appeals to us who have a keen sense of his humor, and that is his stupidity. As an illustration, I was on my way to Thirty-fourth street and East River to take the Long Island Railroad to go to Flatbush. I had a pocket full of cigars, ten for a quarter. I jumped aboard of a horse car, the driver of which proved to be an Irishman. I gave the driver a cigar in the hope that he would accelerate his team so that I could make my train. It did not have much effect, we were going at the rate of about a mile and a half an hour, when I gave him another cigar, "Couldn't he get them to go on the run? I am afraid I shall miss the train." He never said a word, but shouted up to the team as he did before, they went at the same rate of speed. I became disheartened and produced the third cigar. "Won't you please use the whip, make them gallop, make them run?" He turned around and said, "Do you really want to make that train?" I said, "Yes, yes." "Well," he said, "you have been good to me, you have given me three cigars, and that is more than any man has ever given me; but if you want to make that train, get out of this car and get on the one back of me—they have a better team of horses."

We find wit in the child. Little children make peculiar remarks of a witty nature that often cause merriment. My little boy of six climbed up on my lap the other day, and said, "Papa, I love you dearly; and doesn't papa love his boy? Say, Mamma, when I die I don't want to go to heaven." "Why, Howard, what do you mean, you don't want to go to heaven?" He said, "No, Mamma." She said, "Why not?" Said he, "Because," and here he gave me a hug. "I want to go where my papa goes." (Laughter.)

While listening to the musical feature furnished by the orchestra, I was reminded of a story that was told me by a Congregational clergyman of a very old clergyman in the Nutmeg State of Connecticut, who was stone deaf. He was desirous of introducing congregational singing in the church, they had never had congregational singing. So he proposed at his own expense to supply the congregation with new hymn books. This announcement was to be made to the congregation by the clerk, who at the same time first announced bap-

tism of infants: "All those who have infants whom they wish to have baptized will kindly send their names to the clerk." The poor old dominie, assuming that the clerk was talking about the hymn books, said he would like to add, for all those who haven't any that they can get them at the vestry on Tuesday next between three and five, the small ordinary ones ten cents each, while the larger special ones with red backs were twenty-five cents. (Laughter.)

Mr. Page: I shall ask you to listen to the next regular toast, which will be "The Carriage vs. the Automobile." Before introducing the speaker, I want to say to you that I had the pleasure of riding in an elevator in the Kaiserhof, in Berlin, and we were going painfully slow. I said to the attendant, "Can't you go a little quicker?" "You are an American," said he, "and I want to tell you we have got laws in this country which prevent us from going quicker."

Aren't we going a bit too fast? With our rapid state of locomotion that we are in to-day, is it not time for us to reflect whether we ought not to go a bit slower?

I shall have the pleasure of introducing to you Mr. Arthur F. Bowers, who will respond to the toast. I know he is a great lover of horses and I know that he can talk upon the subject.

Mr. Bowers: Mr. Toastmaster, Ladies and Gentlemen: I am not sufficiently presumptuous to take up many minutes of your time, and I know every one in this room is impatiently awaiting the flagellation that Mr. Hegdes is to administer to our friend here. * * * * * I think every one of us ought to be profoundly grateful to the managers of this very delightful occasion, and to the ladies themselves, who have condescended to step down from the loftier heights and to stay on the same level with the inferior sex. (Applause.) I wish it were in my power in any way or manner to approach the inimitable, witty humor of your honored and esteemed toastmaster. It is very difficult in the annals of the brilliant and enjoyable banquets in New York to name his peer, his equal, or any one even approaching him in the felicity and grace with which he presides over such a gathering as this, and with which he calls out the finest and best spirit of such a delightful occasion.

I want to say before I take up the particular subject, that it is always an object of gratification for every true American and every man of public spirit, to be present where so many men are gathered together who do so much to promote the magnificent advance of this superb country of ours. Without undue flaunting of Old Glory and the banner which has nothing approaching it anywhere in this universe, we may fairly say that this United States of ours, this republic of ours, has been going on in the face of all the nations, in the eyes of all the world, in its influence on every race of any consequence, and in a manner which history in any century, in any age, can find no parallel in any way. And it is men like these gathered here who are so largely and so effectively and so lastingly agents of this memorable and notable progress.

Those of you who are not residents of New York, but have come here to join in so pleasant an occasion as this, may have thought that New York was not in altogether as pleasant and settled a condition as it might be at times. We must admit that we are torn up at present; but all of you visitors to New York must realize that no matter what may be our faults that this is a very great and a very cosmopolitan metropolis.

Now, to come for a moment to the subject which has been assigned me in the regular toast list. As Mr. Page said, I have been all my life a very profound and earnest admirer of that friend and servant and associate, so to speak, of mankind, a well-developed horse. Coming down through all the ages, in the highest poetry, in the noblest literature, there have been tributes to the horse that can never be forgotten; and in this present practical age and generation his usefulness has not been seriously diminished. Even if the street car lines are given very largely over to electricity, it is a release and a benefit to the horse, and a disadvantage in no way. How great have been the demands on the horse in every field of usefulness, in every sphere of activity that you can well think of. It may well be that American breeders and American producers may still give larger and more generous attention in the future to the development of this very important branch of our industries.

Now, with reference to the automobile, I am inclined to agree with my friend, Mr. Page, that speed at the rate of a mile a minute on the American road is excessive. We all believe that in the development of these inventions there ought to be a reasonable restraint, and that the effort to accomplish wonderful records and to set down very great achievements in excessive speed ought to be moderated, to a reasonable extent at least. The invention, the enterprise, the ability, the artistic equipment of American designers and decorators, have been shown in the most impressive manner, I think we will all agree, in the building of American vehicles. Take the world over, where will you find in any country carriages equal to those made in this country? While our sister republic of France may have gone beyond the achievements of the United States, to some extent at least, in the production of wonderfully fast automobiles, I do not think our manufacturers, with the people interested in American industries, need worry very much over that. If the American people absolutely insist, in the long run, in having the very fastest machines in the way of automobiles constructed in this country, that demand will be answered. But it is extremely probable that the fashion for these excessively fast vehicles may be somewhat moderated, as the tremendous craze for bicycles which carried the country away has fallen off.

Mr. Page: You know there is a great political struggle going on

in this city to-day, into which they have even injected the question whether or not Carnegie ever said he would entrust the free libraries to the people, or to the present predominant party. Some have even thought the question so important that they have tried to spring it upon the Strong administration. Now, when you want to know of the Strong administration, I want to tell you that the "power behind the throne" was Job Hedges, the Secretary. You know the Secretary has to disguise himself; he has to write the speeches, and the mayor makes them; he is a Cardinal Richelieu. And now, since the poor Mayor has passed away, history and time will give to the secretary his true position. Job Hedges is the real thing, he did the business, and if he don't go for Littleton to-night, there's nothing in him.

Mr. Hedges: Mr. Toastmaster, Ladies and Gentlemen, and anybody else who happens to be here: Any one who has stood what has gone before this evening, can well enjoy my remarks. I had supposed when Brother Page invited me to speak here this evening, that he was to act as toastmaster. I didn't know that he was to exercise his rhetoric and practice a general system of declamation. (Laughter.)

Notwithstanding the attraction that draws me toward Littleton, I enjoyed Wise more than any one else who has been here to-night. And he is a wonder: I heard him a few nights since describe the cable and electric cars as the precursors of civilization—and he was sober when he did it. (Laughter.) I heard him picture electricity as the forerunner of intelligence; I heard him capture the Philippine Islands in a cable car; I heard him civilize the Orient with the trolley,—and then he sank into insensibility, satisfied with what he had done, and let it go at that. (Laughter.)

To-night he tells you that a carriage is the real thing. To-morrow night he will be on foot and speaking as the counsel for a large undertaking concern. I want to state that we can furnish General Wise, almost free of charge, with my political pull, that very kind of conveyance which will take him from the ebullition of post-prandial eloquence to the comolence with which he endeavors to explain to Mrs. Wise where he has been. (Laughter.) I am competent to speak at a dinner of carriagemakers; I never owned one. I have never ridden anything but a hobby or driven anything but a bad temper.

I don't know anything about these references to the kinds of carriages that Brother Wise buys, I don't know what the future has in store, but I have hopes. I believe in carriagemakers; I believe in them as I believe in them as I believe in my life. I didn't say that men who run trolley roads were the real things; I have nothin to explain; I have no excuses to make; I saved myself for this dinner. (Laughter.)

I want to assure this audience, especially the ladies—nobody else spoke directly to the ladies—that I understand the situation. I know what it means, these joint banquets. A man don't have to lie so much when he gets home. (Laughter.) And I haven't any doubt that every man before me will explain to the good women of his family for days hereafter that the night before he was at a banquet, "just such as I took you to." And he will be surprised that they don't believe it. Personally I am a sort of a burnt offering for my friends. When people want to give a real excuse to their families, they say they have been out with me; sometimes it takes and sometimes it does not. No one helps me. I have sat here all this evening, quiet and calm and composed, and listened to these alleged efforts at humor that have preceded me (laughter); this touching effort on civilization, and corn whiskey.

There is a simplicity about a gathering of this kind, a sort of fraternal touch, (laughter) which convinces me that we are all here merely for social purposes. Lawyers cannot do it that way. The lawyer has to keep the penal code in one hand and his nerve in the other, and see how many are looking.

I come back now to my real toast, "The Carriagemakers of the World." A gathering of this kind has a sort of an uplifting effect. Nobody can sit here and not be uplifted, unless he has listened to some of these speeches. (Laughter.) I spoke at the carriagemakers' dinner a year ago, and got off without physical harm. I congratulate myself to-night that I have gotten thus far without serious interruption. It gives me hope that some time I may have the courage to let myself loose into a real post-prandial effort. I can do it. I am not going to do it to-night, not because I don't want to, but because you have had enough. (Cries of "Go on, go on!")

And now, in closing—I don't hear a sound, I have passed beyond. I can see, by a few moments, I should have closed five minutes ago; but I am having such a good time that I hate to sit down. I don't know whether you people are or not. (Laughter and applause.) All I ask is my physical safety.

But I do thank you, and I want to say if anything has been said that ought not to have been said, or anything has been omitted that ought to have been said,—

"Those things we do determine, oft we break;
For purpose is but the slave to memory."

C. B. N. A. CONVENTION.

CINCINNATI, OCTOBER 23, 24 (& 25, 1901.

(Continued from December HUB.)

FOURTH TOAST—"THE OUTLOOK—HOW ROLL THE WHEELS?"

The President: The next toast on the list is, "The Outlook; How Roll the Wheels?" The gentleman who is to respond to this toast had in former times been largely identified with Pennsylvania; he was a member of the Pennsylvania Legislature, and had been identified with the educational interests of that State. I now take great pleasure in introducing to you Hon. L. A. Burrell, of Cincinnati.

RESPONSE BY HON. L. A. BURRELL.

Mr. President and Gentlemen of the Convention: I am called upon to-night to talk to you in pursuit of the honorable gentleman who has just taken his seat, about the passage out from the clouds and out from under the shadows into the light of day. I beg your indulgence when I remind you of the fact that no two of us possibly can have the same sentiments concerning the outlook. We are all one people of this great country, and yet I noticed this evening when the band was playing "The Star Spangled Banner" a certain portion responded with applause, but when the band was playing the strains of "Dixie" there was just as hearty a response from the sons of the Southland. I am reminded I am addressing an audience of gentlemen representing no section of the country, an audience of gentlemen, citizens of one common country, and who know no sectional difference. (Applause.)

Our conceptions and impressions of everything depend largely upon our view. I remember one morning when I came out from my room in the hotel of an Eastern city, as I looked through the casement I had an impression there was a somber hue upon the earth and that rain was likely to fall. Everything had a dull aspect; I looked for a dreary day. When I came out on the street I beheld the sun shining in its beauty and there was a tinge of light and life on everything. I said, "So our conception is as we look on things about us, it makes a great deal of difference what glass is between us and the objects which we view."

And so of the impressions which we are to take as to the political outlook of this country. This is a time when we are entering upon a new cycle, a new era in this country. It makes a great deal of difference who we are and what are our individual conceptions concerning our circumstances and the circumstances that surround us. But I congratulate you, and we have reason to congratulate one another, on the fact that we are all here American citizens.

I remember some years ago to have noticed a company of Welshmen returning from the World's Fair, who had been the prize-winners of the Eisteddfod. They came to the town I lived in. They were very particular to have me say that they came from Glamorganshire. I practiced the word, when I came before the audience and tried to say it, I had actually forgotten the name. Then I simply introduced them to the audience by saying, "This is a party of Welshmen who came from Chicago, who will sing to you this evening." They had no piano, and they were not dressed exactly for the occasion. Their brawny hands showed the effects of toil, as they came from the collieries of Wales, but when they filed on the platform and sang I never heard such harmony and such magnificent melody from any chorus I ever heard in the world. As I looked back in the audience I saw a Welshman, who for twenty-five years had been a citizen of this country, arise and wave his handkerchief. Further over I saw another, and then another, and by and by I saw the wife of one pull him by the coat-tail. Others arose, until by and by it seemed that everyone in that audience was a Welshman, and then the company of adopted citizens arose and sang in the Welsh tongue the chorus these men were singing. One came to me and said, "They do be singing the National Hymn of Wales." These men who for twenty to forty years had not seen the white cliffs of Dover had nevertheless remembered the home of their nativity, and although the adopted citizens of no mean country, they were back in the home land again, singing the National Hymn of Wales.

And so of us here to-night, we may sing in one section of the country "Dixie," and in another we may sing the strains which inspired us in the North on the dark night when it was a question whether Old Glory still hung at the masthead. But when we meet now on common ground we know no North, no South, no East, no West, but one country and one flag. You come to me to-night and say, as inquired one of old of the watchman of Mount Sier, "Watchman, what of the night?" and I cry to you with just as effective assertion, and as much truthfulness as cried he of that day, "The morning cometh." Even though we have passed through the shadows, even though the darkness has been upon us, even though cast down to the earth because our great leader has been taken, we must not forget the words of that other martyred President, "God reigns and the government at Washington still lives."

John Critchlow Prince, one of the lesser poets of England, yet one of the greatest poets the world has produced, has depicted an old hackman riding in the carriage with the king. As he moved along he congratulated himself upon his dignity and the beauties of his surroundings. As he moved along the darkness of a cloud appears and the mutterings of the thunder is heard and the lightnings flash. As he moved down into the deep recesses of the mountain he begins to be uneasy and cries to the driver, "Driver, what hope have we? How roll the wheels?" The driver cries back to the footman, "Footman,

how roll the wheels?" and the answer comes back, "The wheels roll firm." By and by through the swirling torrent they pass to a place of safety, and the old hackman again calls out, "Driver, how roll the wheels?" and the driver answers back again, "The wheels roll true on solid ground."

And so when you come to me to-night and say, "What of the outlook? How roll the wheels?" I answer, "The wheels roll safely on solid ground." Great are the possibilities of our country. I would take you to-night to the mount on the shores of the Delaware, or yonder to the mountains of the West and have you look out upon the delectable mountains and say, "Tell me, have we hope?" Here are mines in all our hills, here are gold and precious stones. Great is our country in her resources. When yonder at the World's Fair in 1893 the nations of the earth had gathered they wandered all o'er this land from the Florida plains of the South to the snow-capped mountains of the Northwest, and they gathered on the shores of the Father of Waters and baptized "Columbia, the Gem of the Ocean and the Mistress of the Seas."

Not only is this country great in her possibilities, but wonderful in her history as well. Inspired as we are to-night as American citizens with the fact that the American flag has never been defeated except by Americans, inspired by our forefathers' wonderful history, their military achievements, what more can we have than the greatest encouragement as we look forward to the future? And not only are their possibilities great, as we behold the billowy fields of grain, her harvests multiplying year by year and growing more abundant and mighty, but in our veins flows the blood of all peoples, for we have remembered the Fatherhood of God and the Brotherhood of man, we have opened the gateway of the East and let in all the nations of the earth.

We are a people who have adopted a system of education, until in this country, as in no other country, woman has become the equal of man, and from the schools on every hilltop ring out the bells of victory.

There is hope for the American people despite the fact that three of our great Presidents lie to-night in martyrs' graves. Riding on a steamer on the Atlantic with an old captain a storm arose and every one on board thought the vessel would sink. I saw the captain as he came below and said, "Captain, what hope for the vessel?" He said, "There are still some stars gleaming through the clouds," and so despite our sorrow there are some stars gleaming through the clouds. And while the old ship of state rocking to and fro, methinks I see some stars of hope gleaming for you and for me, and we can anchor that star of hope to-night, not only of possibilities, but of facts which give us a probability of the prophecy I give to you that "the morning cometh."

And let me say to you that we can anchor to a constitution written by inexperienced men, a constitution written in an hour of great excitement, written in great haste, a constitution such as no other nation of the world has ever seen, and which has never failed us in any emergency of our history. But what is the constitution without our free men that General Cowen referred to a while ago?

It is the hope of the country that the men of the country are average men. Out yonder I see coming down the street a band of men, their swift horses, and the bells are tolling and men are crying "Fire;" They rear their ladders and go up, and now I see one coming down from the upper story of a tenement bearing in his arms the almost inanimate form of a child, another carries a woman, and still another with another child, and so on until all of the family are saved from a frightful death. And the men who have been so brave are only average men. A horse is running down the street, the driver is gone and a child is in the seat. A brave man rushes out and arrests the speed of the horse at the risk of his life and saves the child. That man is only an average man. Out yonder on the hills of San Juan when our flag was planted on the ramparts, had you been there, my fellow citizens, you would have seen only the average men on the field of battle, the average men who have stood shoulder to shoulder and made for themselves a breastwork for American liberty, and it is the hope of the country that the average man is in the ascendancy and his power is supreme.

But there is one other element of hope greater than the one I suggested of hope that coming from the great Garfield, "God reigns," and we are, to-night, not only a free people, not only a people where the average man is in the ascendancy, but we are a God-fearing people, and God is at the helm. Do we believe this? If you mark the history of this country, you will find that where men have been active in the affairs of the earth they have been only as the pieces on a check-board, and that a power above guides the destinies of men. History shows us that great men who have planned, but failed in the accomplishment of the very purposes for which they were striving, yet in their very failure have accomplished some great reform that contributed to the world's history. When Washington was in the saddle the politicians said that Washington was a failure, and the newspapers of the day said that Washington was a failure. There was only a handful of men who crossed the ice on the Delaware and wandered over to Trenton to fight against a garrison composed of some of the best equipped soldiers of England. They had nothing but wet powder with them, and only by an accident were they given new ammunition. I tell you there was never a greater miracle in the history of the world, even the falling of the walls of Jericho before the sound of the ram's horn, than when Washington won the first victory on the Delaware before Trenton, after three years of fruitless effort against the English army. We need not gainsay the fact that in the War of the Rebellion, had it not been for some unforeseen circumstances, there were times when the valor of the Southern army would have driven us into our ramparts, and the results would have been

different. Those men in the South believed as truly as we that God reigned. There never was a more devout man led an army to battle than Robert E. Lee, who on his knees every evening prayed and wrestled as did Jacob of old. But the issues were to be decided otherwise. God led the issues and the battle was decided as it was, and the issues of the country were as they were eventually, because a hand higher than the hand of man led the conflict.

And so tonight, in conclusion, if I may point you to the outlook, I point you Eastward to the three crosses upon a hilltop, and point you to the coming of the morning when there shall be a great deliverance in the history of the world. Until that time, that flag that now floats in the isle of the seas, that flag that stands to-night at the gateway of the China Sea, ready for a Christian benediction upon the people of the Chinese Empire, bidding them come under the banner of Christ, when that kingdom shall be dismembered, when that flag that knows no East, no West, no North, no South, floats the world round and carries its benediction and blessing to all the benighted people of the earth, until then that flag shall float. When that morning shall come, of which history and prophecy spoke, when the cross and the crown supplant all standards of the earth, then, and not until then, shall Old Glory be taken down and the cross of our Christ shall be the standard of the world forever. (Great applause.)

FIFTH TOAST—"WITH A TONGUE AND WHEELS."

The President: I am told that nothing goes in any public matter in Cincinnati without Billy Melish. Woodhull says he is chairman of everything in Cincinnati.

The toast of "With a Tongue and Wheels" is very suggestive, and I will leave it to you, gentlemen, to decide, after he is through, whether he has a tongue or "wheels."

I take pleasure in introducing to you Hon. William B. Melish, of Cincinnati:

RESPONSE OF HON. WILLIAM B. MELISH.

Mr. Toastmaster and Gentlemen of the Carriage Builders' National Association:

Some weeks ago I was complimented with an invitation to dine with you, and to add, if possible, to the welcome to Cincinnati, which my fellow manufacturers have given this magnificent association of yours, in word and deed, for several days. Important business called me to the northern part of the State on Saturday last, and I feared that I would not have the pleasure of looking into your faces. At noon today I told the gentleman with whom I was engaged that in thirty-five minutes I must be on a train to keep my appointment here, and for eight hours I have been traveling at express speed to greet you. There is this marked similarity between Chauncey Depew and myself: We both talk best after we are fed—at somebody else's expense. There is, however, a very marked difference between us as to what we say after feeding, a fact you will doubtless observe in a few minutes, so I make the observation first.

Speaking of similarities between us distinguished after-dinner speakers reminds me of a story told of a congressman friend of mine from this State, who shall be nameless. He reached Washington at the beginning of his first term and put up at the Arlington—while his salary lasted. On arrival he seated himself in the chair of an old colored barber at the hotel, and gently made known to the aged African that he was to have the distinguished honor of shaving a congressman from Ohio. He said: "Uncle, I suppose you have shaved many of my distinguished predecessors in Congress—many men, now dead—who have filled the high position to which I am called." "Yes, sah," said the barber, "I've knowed a heap of 'em, sah, an' by de way, Jedge, you remind me powerful much of Daniel Webster. 'Ah!' said my friend, 'ahem; is it my voice, or my manner or my massive brow?" "No, sah," said the darkey, "it's your breff, Jedge; it's your breff."

Speaking of Washington, I am reminded of what an interest the Father of his Country took in your line of business. You remember how he always took a "hack" at the cherry tree. Going back a little further in our mutual family history I note in the first chapter of Genesis, that Adam and Eve were walking through the garden one day when they saw a monkey picking some sort of microbes off of another monk, and Eve said: "What is that, Adam?" and Adam replied: "Looks like the first buggy in the Garden of Eden."

I note that the toast assigned me is: "With a Tongue and Wheels." That sounds a little "woozey," and looks something like it may be a boomerang. I am sure it's loaded. In that respect, however, it need cause no surprise in this convention. Judging the whole bunch by our local representatives in your association, I am sure each has a tongue and all "have wheels." If you don't believe it "this way sinners" and you will get an infinite variety of both articles. I presume the toastmaster expects me to "tire" you "felloes" with my "tongue and wheels" until Cincinnati will say I am no "spokes" man of hers. You absent from home "hub"bies need fear nothing, because, when this banquet is over you can go to your hotels, while we have to go home to lectures that are "curtains on the side," the result of tight couplings, doubletrees and little neck-yokes.

But to come back to our "tongue." What a lot of thoughts crowd into our minds with the word. The Tongue: In the carriage trade it has a front place. Straight as a die, well trammed, good finish, it has the pull. If it breaks there is trouble, the wheels are no good, and we are at a standstill and sent up for repairs.

With that variety of meaning which the English language often gives to the same word, we leave the wooden thing to speak of the living tongue. Shakespeare said: "The tongue can no man tame, it is an unruly evil, full of deadly poison," and "Bill" generally knew what he was talking about. "Shake," also makes an observation

about the carriage supply salesman, when the moon-gazing Juliet describes one of the drummers as "a gentleman, nurse, that loves to hear himself talk, and will speak more in a minute than he will stand to in a month."

Speaking of tongue, a pert miss seated next the Hebrew author, Zangwill, at a luncheon in Chicago asked him this question: "Mr. Zangwill, how do you like Chicago ham?" The dreamer of the Ghetto quietly said: "I like it—I like it much better than Chicago tongue."

Our mutual friend, Hubbard, the renowned Philistine who is thought by some to be the very embodiment of "a tongue on wheels," wrote some homely truths about tongues that may well be listened to by all who are business men, and especially by some who are keen competitors. He says: "There is really no proof that Chicago tongue is any worse than any other brand, but let it stand as the type of a bad thing. Should the Angel Gabriel come to me and in a confidential undertone declare that a certain man—any man or angel—was a villifier of truth, a snare to the innocent, a pilferer, a sneak, a robber of graveyards, I would say, 'Gabriel, you are troubled with incipient paresis—I do not believe a word of what you say. The man you mention may not be a saint, but he is probably just as good as you or I. In fact I think he must be very much like you, for we are never interested in either a person or thing that does not bear some direct relationship to ourselves. When we remember that hoarse, guttural cry of 'Away with him—away with him' and when we recall that some of the best and noblest men who have ever lived have been reviled and traduced, indicted and executed by so-called good men—certainly men who were sincere—how can we open our hearts to the tales of discredit told of any man? A person who repeats an unkind remark is probably doing a much greater mischief than the one who first voiced it. The one who repeats the story and thus retails the poison fails to supply the antidote. Let his name be anathema. The hate we sow finds lodgment in our hearts and the crop is nettles that bite unrelentingly demands we shall gather. They who live by the hammer shall perish by the hammer. If you work in a department store, a bank, a railroad office, a factory, I beg of you, on your life, do not knock. Speak ill of no one and listen to no idle tales. Whether the bitter things told are true or not, has no bearing on the issue. To repeat an unkind truth is just as bad as to invent a lie. If some one has spoken ill of me, do not be so foolish as to hope to curry favor by telling me of it. You can never stand in with the boss by telling him of those who are laggards. The only way you can win his favor is by setting the loafer a pace. He knows all about the loafers—God help him! for if he did not he could never successfully manage an institution. No man can ever succeed who hopes to get a better position by defaming or dragging down the reputation of another. There is only one way to win and that is to do your work well, and speak ill of no one, not even as a matter of truth. Any other course leads to fears, fears, fearful waste of life-force, and oblivion. There is only one way to win the favor of good men—and do you care for the approbation of any other?—and there is only one way you can secure the smile of God, and that is to do your work as well as you can, and be kind, and be kind."

I am rejoiced to know by the reports of your convention that the carriage builders are sharing in a large measure the tides of prosperity which for several years have swollen the streams of commerce in this fair land of ours. When some of your number told me of the large increase in their product, I was as much bewildered as a Jewish friend of mine was at Atlantic City last month. Isaacs had suffered for months from malarial fever. His doctor recommended the sea air and salt water baths. Isaacs lived at Kokomo and had never seen the ocean. He arrived at Atlantic City late at night and retired at once. Next morning he told the hotel clerk that he had been ordered to take salt baths, but to take them in a room until he was strong enough to buffet the breakers. The clerk directed him toward the shore and Isaacs saw the ocean for the first time and at high tide. Going up to a man in a bathing suit he said to him: "Are you the man vat owns the vater?" "No," said the man, "I only own a part of it." "Vat vill you charge me for a couple of buckets of it?" says Isaacs. "A nickle a bucket, if you come after it yourself," said the man. "All right," said Isaacs and he got two buckets, paid the man his ten cents, took the water to his room, and had a bath, or rather a part of one, enough for high-necked, short-legged underwear. Isaacs then went to bed, tired out and stayed in his room all day. About 5 o'clock he remembered that he was to take another bath in the afternoon. He got his buckets and sought the shore. The tide was out and Isaacs walked about a quarter of a mile to the edge of the water. He found his friend, and said: "I vant two more buckets of vater." "All right," said the man, "ten cents, please." Isaacs filled his buckets and then noticed the place where he got the water in the morning, and the place where he then stood. Turning to the man he said: "Holy Moses, vat a large pizness you done today."

But about wheels. Wheels are most important agents in machinery, being employed in a variety of forms and combinations for a variety of purposes, as for transmitting motion, regulating velocity, converting one species of motion into another, reducing friction, or in equalizing the effect of forces applied in an intermittent and irregular manner. But, important as are the mechanical wheels it is the human wheels we are to contemplate for a minute. To say "that man has wheels" is often our careless comment about some one who has more sense about some particular thing or line of work than we ourselves have. He is usually one of the kind that Lowell describes when he says:

"I honor the man who is ready to sink
Half his present repute for the freedom to think;

And when he has thought, be his cause strong or weak,
Will sink t'other half for the freedom to speak,
Caring naught for what vengeance the mob has in store,
Let that mob be the upper ten thousand, or lower."

We all have wheels, of more or less calibre, and the most of us needn't be ashamed of them. Even if we be considered as having a mental warehouse full of them, we can take comfort in the words of the old English poet, Dryden, who said:

"Thou springst a leak already in thy crown,
A flaw is in thy ill-baked vessel found;
'Tis hollow, and returns a jarring sound.
Yet, thy moist clay is pliant to command;
Unwrought and easy to the potter's hands;
Now take the mould, now bend thy mind to feel
The first sharp motions of the forming wheels."

Speaking of wheels—but I am reminded of another story. An old colored preacher had enlightened the faithful with a two hours' discourse. When he had finished his sermon, and his audience—he stopped at the door of the little church to receive the praises of the "bredderen," but they didn't come forward as usual. The old preacher was forced to ask Deacon Rastus Jones how he liked the sermon, and Rastus ignored the question, but said: "Pahson, you'se got a heap of common sense, and some Bible sense, but somehow or other you don't seem to have no quittin' sense." I am sure I need draw no diagram of the application of this story.

SIXTH TOAST—"THE YANKEE IN CANADA."

The President: The next toast on the list is "The Yankee in Canada." The gentleman that is to respond to this toast needs no introduction of mine. Begging the pardon of the gentleman in question, he came to me a while ago to ask that he be pushed up nearer the head of the list, owing to the other gentlemen who were on the list. I think he was so modest that he thought that when his turn came he could not interest you. I told him that the boys were always ready to wait to hear from him.

I take great pleasure in introducing to you Mr. Grant H. Burrows.

RESPONSE BY MR. GRANT H. BURROWS.

Mr. Chairman and Gentlemen: Some few years ago, when I made one of my periodical visits to the old home, I heard that the remark was made, "I see Burrows is here." "Yes." "Why, I thought he had gone to Canada." So he had. And I have heard so much of this great home country, I mean for the past hour or so, that I forgot almost that I was of Canada. I don't believe half of you know where it is, or what it is, or much about it; but I want to say to you that while I stay in Canada, both my heart and my home and my vote are under the old flag. And I expect to glory in the fact, if the good Lord spares my life and a few years, to come back and vote for that noble man who has the courage, and is the gentleman to fear no one, and to love all alike, and to feed, if it might be an honor to himself in doing it, even a gentleman with a colored skin.

I don't think I have time to tell you much about Canada. Do you know where it is? Just north of here. It starts in at the Great Lakes, and ends out at the Aurora Borealis. It is larger than this big country we have been talking about by 600,000 square miles, leaving out Alaska. It has the grandest system of lakes and water transportation; it has the grandest scenery; it is the finest country under the globe, barring the icebergs. We are a little far north, and that's all.

I want to say to you gentlemen, that there is a likeness between our country which we have been speaking of and which we all glory in, and that great country to the north of us, so complete that were it not for the tariff war you would not recognize the difference when you cross the line. It has noble, educated, cultivated, free men; it has elegant, lovely and lovable women. It has public schools quite the equal of our own. It has the same liberty, the same freedom, the same rights as our own. It floats next to our own flag the grandest banner that there is under the sun. (Applause.)

I was in Ottawa a few weeks ago just as they were decorating that beautiful city with their own banners, and ours also was floating there, preparing to receive the new prince, who some day may live to be their king; and just at that time our own flags were flying half-mast, and that day they carried the body of our beloved President to his grave, and in Ottawa and all over Canada those decorations were draped in mourning and the old British flag came down to half-mast, and the common blood, and the common love, and the common manhood shone out as they mourned with us the death of a great and a good man. (Applause.)

I pity that man who does not love above everything else under the shining sun the flag under which he was born. I care not whether it be the flag of the smallest principality that is only a dot on the map, though he may become a citizen of the United States, let him love first and foremost and forever that flag under which he was born; otherwise he could be a man without a country and a man not fit to walk the earth.

And yet there are two banners that always, it seems to me, stand for more, two banners that wherever they fly, stand for freedom and right and righteousness and opportunity and glory, that ever and everywhere should be side by side honored alike. I care not who it is, every American citizen, if he does not honor the Union Jack, hardly honors our own flag. I want to say that wherever they fly

they should fly together; wherever they go, they should go together; and whenever one fails, if fail it does—and they never have either of them—the other should come to its rescue, be it where it may, for there is no other banner to which those two will ever drop except that they still will ever and everywhere salute that one banner of the Cross alone. I glory in that banner.

Now I will tell you a little about Canada. I might tell you more, but I am afraid you will all come over there and make buggies. There are in Canada only 6,000,000 people—a little less than that even. Think of it! A land with 600,000 square miles of territory more than our own and not as many people as there in the State of Pennsylvania; and with that population unfortunately—I speak advisedly—almost 2,000,000 are French. Now, I do not say unfortunately because they are French, but I want to draw a lesson right here and now for all American citizens. The great mistake made in the Dominion of Canada when they unified into a Dominion was the fact that they continued the custom running away back in the days of old Quebec, when the French language as spoken was taken in on a compromise. All compromises are hateful things, from the Missouri compromise away down until to-day. That compromise was that the French language should be taught and spoken, and in the Parliament at Ottawa two clerks put everything, one into the English, and the other into the French language. The Frenchman makes his address to the Englishman, who can't understand him, in French. That stands always as a menace to the country and the government, because there are two languages; and where there are two languages there are always two interests and two kinds and classes of people.

Up in Nova Scotia, New Brunswick and Prince Edward Island, live the Yankees of Canada. It is an inhospitable country, a country very much like our own Maine and New England, that makes few crops except sterling, noble, God-fearing men, of Scotch, Irish and English blood, and hardly any French. For a long time every Maine crop was fish, potatoes, hay and lumber—and men; and they grew less in population. I don't think to-day that in ten years there has been an increase of five per cent. in population in that country, but there is something coming there, something that we may well watch. While we are talking of expansion they are off on that jumping off place of Sidney and Cape Breton, nearer to Europe than any point we possess, they have found out that in that climate they have iron and coal; and Yankee capital, energy and enterprise has gone up there, and in a very short time they are going to put iron and steel into England, Germany and France cheaper than we can do it, by a good profit on freight alone; so that after all they are waking up in that country, and in a little while we are going to have a competitor that we may well be afraid of.

In Quebec the only thing that sells in the buggy line is jump seats. They are a prolific race and only buy one thing. They want something that will hold a large family and that sells cheap. They do very little crowing yet, but you know the least enterprising country in all the Dominion has increased most rapidly in population. Now, that is a remarkable thing. We expect enterprising countries to increase in population, but in Quebec, the least enterprising, the most—I won't say indolent, but contented, but careless, happy-go-lucky, priest-ridden Frenchmen, they simply multiply like rabbits and never go away from home—and jump seats sell there, and that's about all!

But in the other parts of Canada, in Ontario, which you might compare to our Empire State, for it is a grand province, they have not increased over 10 per cent. in ten years; and do you know why? Our land to-day is blessed with Canadians. I believe there are more Canadians in the United States, taking their descendants and all, than there are left in Canada to-day. The best blood we get, and the only emigrant that comes here that becomes at once a full-fledged American citizen is our Canadian emigrant. They come here and become a part of us, and they are the best part of the people that come to us from any other land. Over in Manitoba, in that great wheat region, they are also growing; and up at the Soo there is more iron coming, and there is more competition, and up in Canada, there where my business interests lie, we are moving ahead at a pace that will some time be felt even over here where you think they are all so very slow. They are a brave people, a grand people; they are really a part of ourselves, but loyal as they can be to the ruling powers of the old land and to the Union Jack.

I could say a great deal to you were it not so late. It would only be matter of information, which you do not want tonight; you want fun, and I haven't got very much in me just now. I really feel just as much a Yankee, in fact, more than ever before. I still expect ever and always to be one with you wherever you are, or wherever we may land. Of course, we cannot expect to get you up in Canada and have banquets like this. Canada would not know what was happening; it would wake her up. We don't get up early there. We lock up our offices and go to dinner and stay two hours, and when you want to see a man you have to make an engagement with him in advance, just as they do in England. We are a comfortable people. I have learned to go slow, learned to take comfort. I am not trying to make money, it is too tiresome; so I can only say you, my friends, my fellow-laborers, come and see us up in Canada, where you can get good fish, good air, and have a good time. (Applause.)

The President: This concludes the list of toasts as printed, but we still have a treat in store for you. Mr. Walter D. Gregory will respond to the toast of the "Carriage Salesman."

Mr. Gregory responded as follows:

Mr. President, Members of the Carriage Builders' National Association, ladies and gentlemen: In responding to the toast, "The Carriage Salesman," I will, with your permission, consider the subject in

the broad sense, and include in my remarks the men who sell accessory materials as well as those who handle finished vehicles.

My personal experience, both as a "knight of the grip" and as an employer, has thoroughly convinced me that the traveling salesman is one of the most important factors in the commercial world. He is the man who stands between the seller and buyer, he it is who from force of circumstances adjusts differences both great and small; he is the one who should be and ever is on the alert watching the financial and moral standing of purchasers.

No estimate of the wonderful progress that has signalized the history of the past hundred years would be just and comprehensive that did not make adequate mention of the important part that the traveling salesman has played by his contribution to the sum of human happiness, commercial prosperity and business elevation.

It is the traveling salesman in these days of commercial progress, who is very largely responsible for the building up of bank accounts of both corporations and individual manufacturers. In fact, as I stated in New York a few nights since, he has well been called "the backbone of commercial enterprise."

The "man on the road" is also one of the greatest educators of the age, traveling to every point of the compass in all seasons, imparting information at all times, in all places and under all conditions.

The traveling salesman reminds me very forcibly of the hero in the little story, "A Message to Garcia." He starts out from the office, he does the business and he turns in the order. No one is at his elbow to teach him the study of human nature, no one is at hand with whom he can consult regarding intricate problems that arise and which must be solved on the spur of the moment, no one is near to assist him in answering questions of detail not only regarding his own goods, but concerning the products of his competitors. He is there alone and must be competent to "face the music" first, last and all the time, and carefully guard the best interests of his employer. The traveling salesman has to be not only a careful and shrewd business man, but, to use a well-worn simile, he must also be a business politician.

We can therefore readily understand why every employer should do everything within his power to assist the salesman in becoming a man of better general business qualifications and a better financier. This can be done by more careful coaching in the office and also by his receiving assistance from high class men on the road who are in the same line of business.

On November 18th, 1901, a few traveling salesmen met in an eastern city. The "boys" were hard and conscientious workers, and history says "successful." They felt that the go-as-you-please way and the old methods so full of jealousy, were not accomplishing the same good results as would accrue from a mixture of fraternal friendship and brotherly love. The outcome of this meeting was the formation of an association having for its objects mutual encouragement, support and protection; securing situations for members; informing members through the secretary of all firms of doubtful credit; assisting each other in sales where such assistance does not conflict with the interests of firms represented; endeavoring to obtain better railroad rates, and aiding each other in all honorable ways which will promote the welfare and happiness of members.

The organization of which I speak is the Carriage, Harness and Accessory Traveling Salesmen's Association of the United States. It is more commonly known as the C. H. A. T. You will notice that it so happens that these initials very appropriately spell the word "chat" so characteristic of the "boys" on the road. Beginning its career just ten short years ago with a membership which could be counted on your fingers, it has grown to a point where its advantages are recognized by the entire trade and its membership extends to nearly every state in the Union.

The active membership is confined to traveling salesmen who handle carriages, harness and the accessory lines, but its advantages and value do not stop there. Manufacturers are eligible for associate membership which carries with it far more advantages than I now have time to discuss.

Manufacturers and salesmen, you should not let twenty-four hours pass by without inquiring fully as to the "Salesmen's Clearing House" system of the C. H. A. T. This is one of the duties you owe to yourselves. Don't neglect it. This department has done more to bring together the right manufacturer and the right salesman, than any other method with which I am familiar.

In closing, I want to place myself on record as saying that the services of a high class salesman are equally as important to the manufacturer as the position is important to the salesman. Show me an up-to-date and successful manufacturer and I will show you a liberal employer of high class salesmen. (Applause.)

ADDRESS OF MR. ROBERT AULL, REPRESENTATIVE OF THE ST. LOUIS WORLD'S FAIR.

The President: Gentlemen, as the cars are making the circuit and will not be around for about ten minutes yet, so I am informed, I take great pleasure in introducing to you Colonel Aull, of St. Louis, a member of the Louisiana Purchase and World's Fair Company, who are preparing for the great World's Fair to be held in St. Louis, 1903. Colonel Aull will speak to us of the transportation department of the fair.

Colonel Aull spoke as follows:

Mr. Toastmaster and Gentlemen: It was with great pleasure that I accepted the invitation to participate in this delightful banquet, as a representative of the World's Fair Company, and I desire to ex-

press my appreciation of the courteous invitation extended and the honor conferred. With transportation as a theme much might be said, even without the benign influence of vintage of old viands rare, but, as there are many speakers to be heard from, I will be brief. Who can forget the words of the immortal Bacon, embossed above the great door of the transportation building at the famous Chicago Exposition, "There be three things which make a nation great and prosperous—a fertile soil, busy workshops and easy conveyance of man and things from place to place," or those of Macauley, who said, "Of all inventions, the alphabet and printing press alone excepted, those inventions which abridge distance have done most for civilization." Who can doubt the truth expressed in the thought or deny that Americans were the first to solve the problem of speedy civilization, by means of safe, fast and effective transportation in all its branches. With reference to the transportation building of the coming World's Fair, I desire to state that it will be one of the most beautiful within the exposition grounds, in a splendid location, and larger by far than any building used for similar purposes at any former exposition.

On April 30, 1803, Thomas Jefferson purchased from Napoleon that district known as the Louisiana territory, sometimes called Jefferson's West, the consideration being fifteen million dollars. The taxable wealth of that territory stands today at six billion six hundred million dollars, and we are to commemorate the acquisition in 1903. One hundred years later, with an exposition to which over twenty-five million dollars are available. This is an age of expositions; they are as mile-stones on the world's highway, where the nations walk with awe in the contemplation of their own progress and advancement. We bespeak your patronage and assistance in a common mission of producing the greatest exposition of the decade.

In closing, I assure you that, when the ring of the saw and hammer shall have ceased, and when the great gates of the completed exposition shall open wide for the incoming of the people; when majestic palaces of agriculture, manufacture, machinery, electricity and all the "allied arts" and industries shall top the hills of the forest city, when its new streams and waterfalls shall ripple and sing like the brook of old, there will be seen that structure not less magnificent, not less important, nor less dear to the hearts of the people, which shall be entitled, in the language of our distinguished toastmaster, Transportation Department. (Applause.)

The President: We understand that Colonel Aull is celebrated at home in St. Louis for his "Stein" song, and I am pleased to call upon him to favor us.

Colonel Aull favored the audience with a splendid rendition of the song. He was greeted with frequent applause.

After singing of "Auld Lang Syne" adjourned *sine die*.

REDUCED RATES GRANTED.

THE Merchants' Association has received official notice from the Central Passenger Association that that body has granted the application of the Merchants' Association for reduced rates to New York from what is known as Central Passenger Association territory. That territory covers all that part of the country west of Buffalo, Pittsburg, Wheeling, extending to the Mississippi river, including the cities of St. Louis and Chicago, south to the Ohio river, taking in, however, that portion of northern Kentucky which is traversed by the line of the Chesapeake & Ohio Railroad.

Reduced rates will be effective from Central Passenger Association territory on February 13 to 17 inclusive, and March 1 to 4 inclusive, with a return limit of thirty days from date of sale of each ticket, the rate of fare being one fare and one-third for the round trip.

As the Trunk Lines had previously granted the application of the Merchants' Association for reduced rates from their territory for two sets of dates, namely, March 15 to 20 and April 4 to 7 inclusive, with a return limit of fifteen days from date of sale of each ticket, the rate of fare to be one fare and one-third for the round trip, there will be, therefore two sets of dates from each of these territories, or, a total of four sets of dates from the country extending as far west as the Mississippi river.

The Central Passenger Association also agreed to honor tickets, under the same conditions, from the territory of the Southwestern Passenger Bureau, which includes Texas, Indian Territory and Oklahoma.

The lines forming the Southwestern Passenger Bureau will not meet until the second Wednesday in January, at which time the application for rates from the territory over which they have jurisdiction will come up for action.

Application will also be made to the Western Passenger Association, which has jurisdiction over that section of the country west of Chicago and northwest of St. Louis, for the same dates from its territory.

Automobile Department.

THE AUTOMOBILE CLUB OF AMERICA.

753 Fifth Ave., New York,

December 13, 1901.

The following standing committees have been announced for 1902:

Technical Committee: Dr. Schuyler Skaats Wheeler, chairman; Peter Cooper Hewitt, Lewis Nixon, Louis Duncan, L. T. Gibbs, E. T. Birdsall, A. L. Riker, Prof. Elihu Thomson.

Runs and Tours: Jefferson Seligman, chairman; George B. Adams, Frank Eveland, John Aspinwall, J. C. McCoy, Percy Owen.

House Committee: J. M. Hill, chairman; William Iselin, Bradford B. McGregor, Samuel H. Valentine, Henry K. Browning.

Library Committee: Albert R. Shattuck, chairman; James L. Van Alen, T. C. Martin.

Membership Committee: Gen. George Moore Smith, chairman; Juan M. Ceballos, Sidney Dillon Ripley.

Laws and Ordinances: George F. Chamberlain, chairman; Judge James C. Church, Dave H. Morris, Henry Rogers Winthrop, William W. Niles, Morris Putnam Stevens.

Sign Post Committee: A. Ward Chamberlin, chairman; Geo. B. Adams, Frank Eveland.

Good Roads Committee: Albert R. Shattuck, chairman; George R. Bidwell.

Committee on Foreign Relations: J. Dunbar Wright, chairman; Clarence Gray Dinsmore, Hart O. Berg, Eugene Higgins.

Racing Committee: Albert C. Bostwick, chairman; Dave H. Morris, Clifford Brokaw, William Henry Hall, George Isham Scott.

Auditing Committee: Geo. W. Young, chairman; W. M. Van Norden, W. McMaster Hills.

THE NATIONAL ASSOCIATION OF AUTOMOBILE MANUFACTURERS.

THE National Association of Automobile Manufacturers is now fully organized, officers elected and Constitution and By-Laws adopted. The office is at 95 Liberty street, New York City. The following preamble is published in connection with the list of officers and constitution:

ORGANIZATION.

On the closing day of the first annual Automobile Show held under the auspices of the Automobile Club of America, at the Madison Square Garden, New York, November 3d to 10th, 1900, the representatives of over thirty different manufacturers of automobiles and automobile supplies and accessories, whose exhibits were then in the Garden, met and appointed an organization committee, whose work has resulted in the formation of what is now known as the National Association of Automobile Manufacturers.

OBJECTS.

As stated in the call for that meeting, the objects of the association are to advance and protect the interests of the trade; to procure an adjustment of freight rates; to promote good roads; to procure proper legislation and the modification of recent rulings of the United States Treasury Department in reference to transportation of gasoline vehicles on the waterways; to deal with the question of national shows and exhibitions, and with such other matters as may properly come within the scope of such an organization.

SHOWS.

The following procedure has been adopted in reference to shows: That when the secretary shall have been advised of any projected or proposed show, he shall at once forward to all members a statement of the general purpose of such show, the auspices under which given, and any other information of value to the members of the association. Upon receipt of such information each member shall inform the secretary of his attitude toward said show, the result of the consensus of opinion thus obtained relative to the show to be forwarded by the secretary to all members to assist them in forming individual judgment in the matter of exhibition.

CONVENTION.

The first general convention for the discussion of trade topics will be held at some suitable time during the Pan-American Exposition at Buffalo in the summer of 1901.

MEMBERSHIP.

The membership is of two classes, active and associate. Active membership is limited to manufacturers of automobiles; associate membership is open to manufacturers of accessories, sales agents and automobile trade journals (Constitution, Art. III, secs. 1, 2, 3).

DUES.

The dues for active members are \$25 for the first year and \$10 a year thereafter; for associate members, \$15 the first year and \$5 thereafter (By-Laws, Art IV, sec 3).

APPLICATIONS FOR MEMBERSHIP.

Applications for membership should be by letter, addressed to the secretary of the association, signed by the applicant, and endorsed by at least two members in good standing (application blank herewith).

Fifty (50) firms are now represented in the membership, and it is the desire of the executive committee that the association shall include the entire trade.

OFFICERS, 1901-1902.

President—Samuel T. Davis, Jr., Locomobile Co. of America.

First Vice President—John H. Flagler, Automobile Co. of America.

Second Vice President—J. Wesley Allison, Woods Motor Vehicle Company.

Third Vice President—C. J. Field, De Dion-Bouton Motorette Company.

Treasurer—D. S. Walker, Mobile Co. of America, Times Building, New York City.

Secretary—E. P. Wells, Steamobile Co. of America, Keene, N. H.

Assistant Secretary—E. D. Knappen, 95 Liberty street, New York.

CONSTITUTION.

ARTICLE I.

Name.

Section 1. This Association shall be known as the National Association of Automobile Manufacturers.

ARTICLE II.

Objects.

Sec. 1. The object of this association shall be the advancement and promotion of the interests of the automobile trade, and it shall be essentially a membership association, supported by members' subscription and not carried on for profit.

ARTICLE III.

Membership.

Sec. 1. The membership shall consist of two classes: Active and associate.

Sec. 2. Any person, copartnership or corporation of good standing and engaged in the manufacture of automobiles in the United States shall be eligible to active membership.

Sec. 3. Any person, copartnership or corporation of good standing, engaged in the United States in the manufacture of parts of automobiles or accessories thereto, or in the sale thereof, and journals devoted in whole or in part to the interests of the automobile and allied industries shall be eligible to associate membership.

ARTICLE IV.

Government.

Sec. 1. The officers of the association shall be a president, a first, second and third vice presidents, a secretary, a treasurer and an executive committee, fifteen in number.

BY-LAWS.

ARTICLE I.

Government.

Section. 1. The general management and control of the affairs and funds of the association shall be vested in an executive committee, fifteen in number, to be elected from its active membership, as hereinafter provided.

ARTICLE II.

Meetings.

Sec. 1. The annual meeting shall be held in the city of New York during the annual Automobile Show given under the auspices of the Automobile Club of America, or at such other place or date as shall be determined by the executive committee. Notice of the time and place of meetings shall be mailed to each member by the secretary sixty days before each meeting.

Sec. 2. Special meetings of the association may be held upon a call signed by a majority of the executive committee, and not less than ten days after the issuance of any such call, and such notice shall state the purpose of meeting.

Sec. 3. At all annual meetings of the association ten active members shall constitute a quorum.

ARTICLE II.

Order of Business.

Sec. 1. The order of business at all meetings of the association and the executive committee shall be as follows:

1. Roll call.
2. Action upon minutes of previous meeting.
3. Reports.
4. Unfinished business.
5. Elections.
6. New business.

ARTICLE IV.

Membership.

Sec. 1. Applications:—Applications for membership must be by letter addressed to the secretary of the association, signed by the applicant and endorsed with the approval of at least two then members in good standing.

Sec. 2. Election:—The affirmative votes of at least two-thirds of the executive committee present at the particular meeting shall be necessary for the election of members. Each candidate upon receiving notice of his election shall within ten days remit to the treasurer, membership fees and dues for the then current year.

Sec. 3. Dues:—The membership fee, including first year's dues shall be for active members, \$25; for associate members, \$15, and the annual dues thereafter shall be: For active members, \$10, and for associate members, \$5. Every member shall, upon the first day of January, 1902, and each year thereafter, pay to the treasurer the annual due for current year.

Sec. 4. Suspensions:—Any member who neglects to pay his annual dues for sixty days after due notice of default shall be deemed to have forfeited his membership, and such member can only be reinstated by a majority vote of the executive committee, and after full settlement of delinquent dues.

NEW AUTOMOBILE CORPORATIONS.

THE Automatic Car Lock and Seal Company, capital \$500,000, have filed papers at Camden, N. J. The Merchants' Rapid Delivery Vehicle Manufacturing Company, capital \$125,000, took similar action.

Henry Ford, of Detroit, Mich., has designed a new automobile which, he says, will outclass the first one he manufactured at every point in the game. Since the races at the Grosse Pointe track he has changed the design of the machine entirely, and now has a model which, he thinks, will perfect all the defects in the old machine. The Henry Ford Co. has been incorporated, Clarence A. Black being elected president; Albert E. F. White, vice-president; William H. Murphy, treasurer, and Lem W. Bowen, secretary. Mr. Ford will be mechanical engineer of the new company and they will begin to manufacture machines at once in the plant of the old Detroit Automobile Co., which went out of existence a year ago. The plant is located at 1343 Cass avenue. William H. Murphy, the treasurer of the company, is the man who is responsible for the new company. When the old company went out of existence he furnished funds for Ford to continue his experiments, and when the first machine was completed it had cost him several thousand dollars. The new machines will have greater power with less weight. The capital stock of the company has been fixed at \$60,000.

Another Cleveland automobile concern has been incorporated under the name of the Krastin Automobile Manufacturing Company. The incorporators are August Krastin, George Schnuerer, B. F. Eibler, Charles S. Beardslee and George T. McIntosh. The company is capitalized at \$200,000. The company owns or controls ten patents on improvements in automobiles, these patents covering the inventions of Mr. Krastin. Four experimental machines have been made to test the principles, and now the company is planning a large plant to be located on the West or South Side. The company's present shop is located on Clark avenue, near Burton street, where about ten men are employed. The new shops will be larger and give employment to about 300 men, it is expected, and automobiles are to be put on the market in time for next season's business. The Krastin machines are to be driven by gasoline, and will have a number of novelties in the steering gear and in other respects. Ordinary machines for street use are to be built at first, but it is intended to build racing machines also later.

Henri Fournier, the celebrated French chauffeur, has perfected the consolidation of the Fournier Company, of Saratoga, with the Searchmont Company, of Philadelphia. The Fournier Searchmont Automobile Company, with \$2,000,000 capital, has been incorporated at Albany, N. Y. Fournier will be vice-president of the company. Foxhall Keene, Clarence Mackay, E. R. L. Gould, J. L. Elliott and Gabriel and Isaac Blum are all mentioned for places in the directorate.

Electric Motor Specialty Co., of New York City; capital, \$20,000. Directors, H. O. Swoboda, of New York City, and J. T. Beswick and David Beswick, of Brooklyn.

The Niagara Motor Vehicle Company, of Buffalo, has been incorporated. Capital, \$25,000. Directors, C. F. Stone and H. A. Weed, of Binghamton, and R. S. Weed, of Buffalo.

The New York Kerosene Oil Automobile Co., to manufacture automobiles operated with kerosene oil, and the New York Oil Industrial Engine Co., to manufacture industrial engines to be operated with kerosene, both of New York City, have been incorporated, each with a capital of \$50,000. The New York Kerosene Oil Engine Co. has filed a certificate of an increase from \$50,000 to \$500,000. The directors of these corporations are Abbott, A. Low of Horse Shoe, St. Lawrence County, and Feodor Hirsh and James W. Eaton of New York City.

THE PROPOSED AUTOMOBILE FEDERATION.

Automobilists are divided as to the proposed federation of automobile clubs for the purpose of controlling racing and the motor vehicle sport in opposition to the jurisdiction assumed by the Automobile Club of America. It was claimed by opponents of the affiliation scheme of the Automobile Club of America that the Bridgeport, Syracuse and New Jersey Clubs alone had approved of that scheme since the discussion had reached its present stage.

Albert R. Shattuck, president of the Automobile Club of America, admitted that the statement that such an affiliation agreement was now awaiting promulgation.

"We maintain that we are the national organization," said he, "and as such should control racing. We are recognized as such by the foreign clubs, and we are empowered to pass upon the eligibility of all American entries to international contests. Outside of this we are the pioneer organization, and we have exercised national functions by securing the passage of laws for the good of automobiling, such as the gasoline on ferryboat act.

"We promoted the great endurance run to Buffalo, and the race meets of the country have been run under our auspices. We are not willing to enter any association of clubs. We do not think a club of fifteen members should have a vote equal in power to that of a club of our membership and standing. We do not believe that racing and the sport generally could be as well controlled by an association as by a metropolitan body like ours.

"The British and French automobile clubs have a much larger membership than ours, but London and Paris are the centers of those countries. We are perfectly willing to give foreign racing credentials to all members of other clubs deserving of them. A majority of the clubs invited to join in our affiliation scheme has already accepted."

Mr. A. R. Pardington, a governor and leading spirit in the Long Island Automobile Club, said his club had taken action at its annual meeting in favor of an association as opposed to an affiliation with the Automobile Club of America.

"It is unfair," said he, "to the Long Island and Chicag clubs to say that the opposition to the affiliation scheme is led by them. They are only two of a good many, and have not sought to pose as leaders of the opposition. Our club believes that the entire sport of automobiling should be controlled by a national federation of clubs."

Mr. L. R. Adams, a governor and former president of the Long Island Club, also thought the claim of the New York Club as a national organization should be disputed.

FROM TOLEDO, OHIO, TO HOT SPRINGS, ARK.

On December 24th the American Bicycle Co. started from their Toledo factory a standard Model B Toledo on a 1,500-mile endurance trip to Hot Springs, Ark., by way of Cincinnati, Louisville, Memphis, and so on to its destination.

The Toledo carriage already holds the long distance endurance record, having successfully made a trip from Toledo, Ohio, to New York City, a distance of 900 miles, with but one slight repair. That trip was made in October of the present year when weather conditions were fairly favorable—that is, on only part of the journey did they encounter rain and snow. The only repair made was to a spring at a wayside blacksmith shop. The conditions differ very materially in the starting on this trip, as the roads of Ohio are in the worst possible condition. The carriage is in charge of Mr. C. E. De Long, of Hot Springs, Ark., a man well known to all the habitués of that

territory. With him will be Mr. John Soules, a local newspaper man who will attend to the publicity and record end of the trip.

The carriage is a standard Model B in every respect with but one exception, namely, the gasoline tanks have been increased in size and instead of carrying nine gallons will now be large enough for a capacity of thirteen gallons. This, of course, will count against the carriage, inasmuch as it will be carrying an increased weight that will be more than the ordinary vehicle standard model will ever have to do.

It has already run over 500 miles, and weighs, with the new gasoline tanks, an even 1,500 pounds. Mr. De Long weighs about 140 pounds and Mr. Soules about 150. Each of them will carry a dress suit case averaging 100 pounds apiece, which will make the total weight of the carriage about an even ton. This is an exceedingly severe load to ask of a standard vehicle, but the policy of the Toledo factory seems to be to insist on their test carriages doing exceptionally hard "stunts," in order to demonstrate that the every day ordinary incidents may be successfully overcome.

The trip will be divided into four sections, as follows :

Section 1. From Toledo to Cincinnati.

Section 2. From Cincinnati to Louisville.

Section 3. From Louisville to Memphis.

Section 4. From Memphis to Little Rock, and thence into Hot Springs.

If successfully completed this trip, which covers some 1,500 miles in all, will place the Toledo carriage at the very head of the steam endurance class. No other steam vehicle built has yet equalled the record made by the Toledo in the recent run to New York. It is expected that the operators will be able to make about an average of fifty miles a day, which would mean that they would consume some forty days in completing the trip. The company do not intend to race the carriage, but simply desire to give it as severe a road test as it is possible for any vehicle to receive. In their advertising they have made the strongest of claims for the Toledo, and in order to prove the truthfulness of these statements a series of tests such as the Toledo-New York and the present trip have been planned.

We hope to record in a future issue the full account of this trip.

AUTOMOBILE EXHIBITION IN COPENHAGEN.

CONSUL JNO. C. FREEMAN, writing from Copenhagen, on Nov. 25th, 1901, says:

An exhibition of automobiles will be held in this city from April 11 to April 27, 1902, under the auspices of the Danish Automobile Club and the Society for the Promotion of Industrial Arts. It will be held in the building of the last-named society, and is designed mainly for automobiles, but some space will be given to motor cycles and articles relating to the driving of automobiles. The exhibition is intended to attract visitors from all the Scandinavian countries.

The conditions of the exhibition are as follows:

No rent whatever to be paid by the exhibitor.

The showrooms, cases, and tables belonging to the society are put at the disposal of exhibitors without charge.

All articles exhibited are, during the time of the exhibition, insured by the committee against fire.

Expenses arising from the ordinary inspection of the exhibited articles are paid by the committee.

The committee will insure a duty-free import of all articles which are again exported at the close of the exhibition.

During the hours when the exhibition is open to the public, the articles exhibited must be kept in the places designated for them; at other times of the day, exhibitors are at liberty to drive their machines.

The exhibitors will have an opportunity of presenting a display in common at some suitable grounds before the close of the exhibition.

Notices of a desire to participate in the exhibition, containing information as complete as possible concerning the nature, size, weight, etc., of the machines, accompanied by illustration, if convenient, are to be sent by the 15th of January, and are to be directed to Industriforeningen, Copenhagen.

During February, replies will be sent stating the extent to which the notifications have been accepted and the latest day at which the articles to be exhibited must arrive at Copenhagen.

American manufacturers intending to exhibit will find a line of steamers from New York direct to Copenhagen.

PARIS AUTOMOBILE SHOW.

The New York Herald publishes the following:

The Automobile Show continues to attract enormous crowds.

The new machines of Messrs. Charron, Girardot and Voigt proved

to be the "clou" of the show, and offers the most serious opposition yet encountered by the Panhard Company.

What makes it the more serious is that the great gun works at Creusot will manufacture the motors of the Charron Company.

Many Americans are here making an inspection and buying.

Several Charron machines have already been ordered for the United States.

Mr. Meyers, director of the Central Automobile Storage Company, of New York, is here buying several machines.

He declares he has received permission from the Mors Company to build machines in the United States, and that M. Fournier has not an exclusive monopoly.

There is a spirited dispute over the exclusive right to sell the Mercedes machines in the United States. Mr. Charley, who recently sold several machines in New York, claims that he has the first promise, while M. Henri Le Maitre, the well known balloonist, asserts that he has the monopoly.

Both took train for Nice to settle the affair with the managing director of the Mercedes Company.

CENTURY MOTOR VEHICLE CO.

THE Century Motor Vehicle Co., of Spracuse, N. Y., have recently purchased the building in which they are doing business, and which they have heretofore rented. This gives them a first-class factory with opportunity for enlarging same.

AUTOMOBILES AND THEATRICALS.

(For illustration see "Latest Styles.")

THE number of New York theatrical stars who are entering into the sport of automobiling is already attracting attention on every hand. Every week the number of footlight favorites using the newest of locomotives is increased by one or more additions. In the picture appearing herewith the personality of Mr. James T. Powers, of "Messenger Boy" fame, is easily detected by the characteristic smile which wreathes his countenance. Patrons of the "Messenger Boy" will no doubt agree with Mr. Powers, whose very expression gives father to the thought that automobiling in one of the American Bicycle Company's automobiles, is after all the sport of kings.

A MINIATURE AUTOMOBILE.

(For illustration see "Latest Styles.")

ONE of the smallest automobiles ever put to actual use is shown this month among "Latest Styles." This little machine was built to order for George J. Gould, Jr., by Cole & Woop, 80 West Sixty-seventh street, New York City. The body is a square box, buggy style, 3 ft. 6 in. long over all, and 22 in. wide. The gear is 4 ft. 6 in. long over all. Wheels, 16 in. front and 20 in. rear; tires, 1½ in.; Hartford pneumatics. The total weight, 265 pounds. It is propelled by electricity, having a ½ horse power motor, batteries 100 lbs., 10 cells, thirty miles capacity on single charge; three speeds, 2, 5 and 7 miles per hour, charge on 20 amps. Capacity, 150 lbs. The body is painted black, with red seat risers and red battery hood. The gear is painted red, striped black.

AMERICAN BICYCLE CO.

(For illustration see "Latest Styles.")

THE American Bicycle Co., of Indianapolis, Ind., have established a repository in New York City, where they have on sale a full line of their standard "Waverly" (electric) and Toledo (steam) automobiles. This company is making extra efforts to place their automobiles before the public and are meeting with marked success.

CREST AUTOMOBILE.

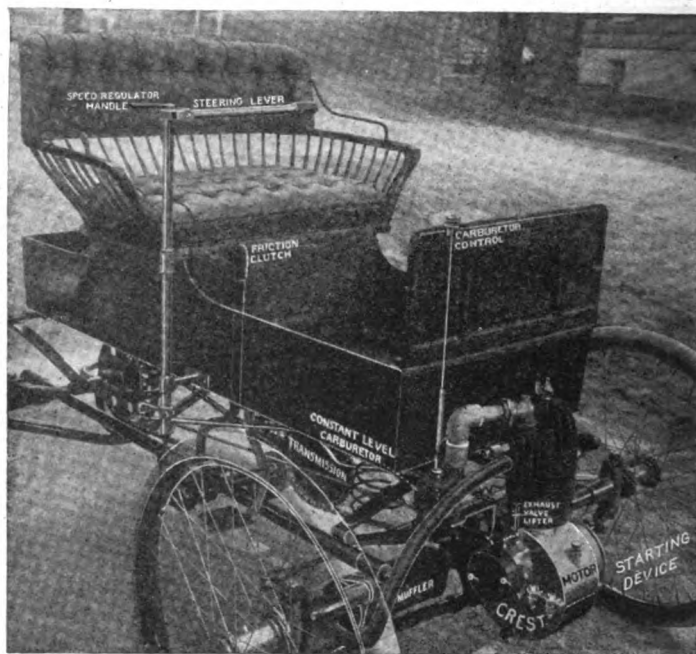
IN order to enable those who are interested in the Crest automobile we print herewith an illustration which shows very plainly the simplicity of its mechanism and explains how the Crestmobile is so well adapted to be placed in the hands of inexperienced persons. Complicated working parts have been dispensed with, reducing the mechan-

ism to a steering lever, transmission clutch lever and one simple speed regulating handle.

The tubing, wheels and axles are of the same gauge and diameter as used on carriages weighing 1,000 pounds. The elimination of some 400 pounds of machinery from the Crestmobile leaves it one of the lightest automobiles now made and at the same time one of the strongest on the market. The removable tank is one of the striking features, and will appeal to the tourists when occasion comes to store vehicles where objection to gasoline is made on account of insurance rules.

All the mechanism is exposed, being under the eye of the operator. The motor with its carburetor is placed on the front axle, where it is easily accessible for repairs or examination. The clutch transmission device is placed underneath the body on the reaches, having flexible bearings. The power of the motor is carried to it by sprocket and chain. Another chain connects from the sprocket of the transmission device to the compensating gear on the rear axle. It will be noticed that the chain is used for transmitting power, as it is a most flexible form of transmission, practically requiring little or no adjustment, and, what is more important, it is noiseless. The carburetor, being practically automatic, when once set needs no readjustment, only for gasoline of different density. The clutch handle is placed in front of the seat and is thrown by the right hand.

In operating the carriage the user starts the motor by means of a starting device, which is shown to the right of the motor looking at



WORKING PARTS CREST AUTOMOBILE.

the carriage. This is operated by a strap and handle placed within the carriage. When the motor is up to speed the operator gradually throws in the clutch, keeping his left hand on the steering handle. After the clutch is thrown in, the right hand is placed on the speed regulator, and the steering and regulating is under control. The speed regulating handle is connected by a rod leading through the center of the steering upright. This being connected by a lever to the advance ignition device. All changes of speed from lowest to the highest can be controlled, cutting out the electric current if desired and opening the exhaust valve when coasting hills. This is an exceedingly important device which originated with this company, who control the patents. Its value is shown from the fact that it is now being universally used by all foreign motor manufacturers. It allows the air to enter the cylinder of the motor, cooling the motor, relieving it of compression, making it invaluable for hills, and preventing the gasoline mixture from being drawn into the cylinder, which makes a saving of gasoline. The carburetor control is shown on the dasher of the Crestmobile. This is seldom used, however.

Under the seat of the carriage is placed the batteries, coil and tool box. Also the tank for gasoline, the capacity of the tank being for 100 miles. This tank is easily removed for refilling, or can be filled at the top by taking off the cushion of the seat. The muffler is placed on the front axle, and is exceedingly efficient, reducing the noise to a minimum, making the Crestmobile almost noiseless. The

carburetor is of the well known constant level type, which has been universally adopted abroad, and now coming into general use in this country. The seat is extra wide, the cushions and trimmings being all of heavy black leather. A light flexible runabout spring is used. These springs are exceedingly flexible and easy and the fact that no part of the machinery is connected with the body, the carriage is vibrationless, making it very comfortable. Owing to its simplicity the company claim that the carriage can be placed in the hands of anybody without the necessity of having mechanical training for operating same.

CHICAGO AUTOMOBILE SHOW.

THE Chicago Automobile Show will be held during the week beginning March 1st. Arrangements have been made for reduced fares from the states east of the Mississippi river, South of Chicago, and west of the states of New York, Pennsylvania and West Virginia, together with Michigan and a part of Canada. Fifty automobile and accessories companies have made application up to the first of this year. And the prospects for a successful show are good. Further details will be published next month.

THE CONRAD MOTOR CARRIAGE CO.

THE Conrad Motor Carriage Co., of Buffalo, N. Y., manufacturers of steam motor wagons, have issued a neatly illustrated descriptive catalogue showing half tone illustration of several of their styles, including the "runabout," stanhope, dos-a-dos, their "special" and surrey, each being fully described, and in addition they print a general description of their steam vehicles, recounting their merits and advantages.

THE AUTOMOBILE AND CYCLE PARTS CO.

THIS company, which has its general offices in the American Trust Building, Cleveland, O., has control of seven large plants. These are:

Diamond Chain Factory, where a very large part of the bicycle chains in this country are made; also automobile chains for power transmission of every description.

Smith Stampings Factory, Milwaukee, Wis.—This plant has unequalled facilities for working sheet metal. Its chief products are: Brazer tubing and bicycle frame parts, carriage, automobile and bicycle steel rims, stamped hubs, stamped cups and cones, automobile and carriage running gears.

Cleveland Ball and Pedal Factory, Cleveland, O.—The ball department has the largest capacity in the country for the manufacture of hardened and polished tool steel balls. Regular stock sizes range from 1/16 in. to 4 in. in diameter; special sizes to order. Balls are also made of Bessemer steel, brass, bell metal, etc.

Garford Saddle Factory, Elyria, O.—This is the giant among saddle factories. Its annual consumption of leather requires the purchase of 50,000 hides.

Thompson Factory, Chicago, Ill.—Here are manufactured hardware specialties in great variety, also bicycle frame parts, known to the trade as Thompson parts, are also made in a large department.

Hunt Factory, Westboro, Mass.—Golf goods of every description are made in this factory.

Sheet Steel Mill, South Chicago, Ill.—The products of this mill are: Cold rolled strip steel, hot and cold rolled plates and sheets for blanking, stamping and drawing.

GROUT STEAM WAGONS.

GROUT Bros., of Orange, Mass., are sending out a neat pamphlet, describing their vehicles, their individual merits and peculiar features, each individual part receiving careful attention, and so clearly portrayed that the most inexperienced can readily understand what the company have to offer. These descriptions, accompanied by illustrations of six vehicles, pleasure and business, with specific descriptions of each, together with price, makes this a valuable reference both for the dealer who may wish to sell and the customer who desires to buy. Write for a copy.

CARRIAGE DEALERS AND AUTOMOBILES.

THE HUB has long held to the proposition that carriage dealers handle automobiles, and not allow the trade to get into other hands,

and as the number of automobiles increase the reasons that held good in the past are intensified. There are many reasons why the dealers should combine the two classes of vehicles. Among them are two that predominate. In the first place the carriage dealer knows the buyers of vehicles in his locality, not merely knows of them, but has had business with them, and he is the one man that the buyer of an automobile would consult if he, the buyer, was sure that there would be no attempt to talk away the automobile. Then, too, he has, in most cases, repair departments, and could easily add all that was necessary to make automobile repairs without a material outlay.

We are pleased to learn that the American Bicycle Company, Toledo, have decided to select dealers, in every town, in the United States, with a population of 10,000 or more. They will be particular as to whose hands they entrust their business, but good live, hustling houses can get favorable terms and square treatment and prompt deliveries, as the company manufacture electric, hydro-carbon and steam motors, the dealer can get a full line to work with. We believe that there is a future for automobiles that will require representatives in all parts of the country, and sincerely believe that carriage dealers should handle them in the future, as they can do so at a profit. If, however, the carriage dealer refuses there will be automobile dealers in a few years who will, and they will be men who will sell a carriage if the opportunity offers, and thus create competition in their chosen field. We have mentioned the fact of the action of the American Bicycle Company in regard to carriage dealers handling their automobiles, with the hope of interesting dealers enough to induce them to write to this company and learn what they have to offer.

INDUSTRIAL DEPARTMENT OF THE NATIONAL CIVIC FEDERATION.

ON Monday, Tuesday and Wednesday, December 16, 17 and 18, there was convened in New York City a meeting, which had for its purpose the discussion of the trouble between capital and labor, with a hope of devising a means whereby strikes and lock-outs could be prevented, or if not wholly prevented, so curtailed as to lessen the evils resulting therefrom. At this gathering there were representatives of great corporations, leaders of labor unions, and prelates and others of advanced thought and liberal ideas. Not such another gathering was ever held, so far as we know. Capital and labor faced each other, while the great neutral force as represented by church and state, stood on guard ready to antagonize ultraism on the part of either of the antagonizing forces. Each of the three divisions were heard, and each, while fearlessly expressing their positions, was considerate and tolerant. Senator Mark Hanna, President Charles M. Schwab, of the United States Steel Co., and Lewis Nixon, president of a great ship building company. The former stood forth as an advocate of labor unions, while the latter opposed the unions as they were to-day, but favored labor unions that would not use their power to restrict labor. Mr. Nixon advocated labor unions, and told of his efforts in their behalf, and why he had favored them. Labor was spoken for by Frank P. Sargent, grand master of Locomotive Firemen; Samuel Gompers, president of the American Federation of Labor; John Mitchell, president of the United Mine Workers of America; John Phillips, secretary of the National Hatters' Union, while Bishop Henry C. Potter, of the Protestant Episcopal Church, and Archbishop John Ireland, of the Roman Catholic Church, were spokesmen for the neutrals.

The meeting was presided over by Oscar S. Straus, former Minister to Turkey, who, after thanking the gathering for the honor conferred by selecting him to preside over the deliberations, said, among other things:

"In no country are conditions by law and by nature better adapted for the equitable adjustment of reciprocal rights, duties and privileges of labor and capital than in our own. And why? Because we are a democratic republic, with no class privileges nor class distinctions to separate us; and because the laborer of yesterday is the capitalist of to-day; and because, too, the capitalist of to-day may be the laborer of to-morrow. Men like Leland Stanford, Carnegie and Rockefeller were all architects of their own millions, who, in recognition of their struggles from and their love for the laboring classes dedicated their surplus millions to enlarge the avenues of access to the highways of success.

"That the wage earners form the primary schools for the millionaires is evidenced every day; that they are more prosperous every year is evidenced on all sides. Look at the deposits in our savings banks, which aggregate in round numbers two thousand and five hundred millions of dollars, an average of more than \$400 for each of six million depositors.

(To be continued.)

FOWLER ELASTIC-ENAMEL PAINT.

THE demands of the times call for improved methods, in every department of manufacture, and in none other is this of more importance than in the carriage paint shop. The old slow and unsatisfactory methods have been a never ending source of trouble, and within a few years past new methods of great merit have been introduced. Among these is the Fowler Elastic-Enamel paint, which by all experiments made and results evidenced bids fair to be one of those that meet the demands of the times for quick, clean and durable painting.

THE WALTER W. WOODRUFF & SONS CO.

THE Walter W. Woodruff & Sons Co., of Mount Carmel, Conn., manufacturers of carriage goods and hardware specialties, have issued their 1902 illustrated catalogue, showing the classes of goods manufactured by them, including pole and shaft tips, door handles, hub bands, door locks, hinges, dash and other rails, together with a long line of miscellaneous articles required by carriage builders. Send for a copy.

OF INTEREST TO THE C. H. A. T.

IN December HUB we announced the gifts made by the Watertown Carriage Co. of a pneumatic runabout that was to be sold for the benefit of the C. H. A. T., and of a donation by Mr. Holland, of Amesbury, of a check for \$25, but we omitted mention of a third donation of a single harness by L. Kiper & Sons, wholesale harness manufacturers, of Chicago. The omission was due to not having received information as to the donation until too late for publication in the December HUB, and we take this opportunity to do justice to the liberality of the firm of L. Kiper & Sons and in behalf of the Carriage and Harness Traveling Men's Association to thank them for their liberal donation.

POMEROY & FISCHER.

THE death of Joseph Pomeroy, of the firm of Pomeroy & Fischer, agents for Nobles & Hoare's varnishes, colors, etc., which occurred on December 16th, will make no change in the business of the firm. The surviving partner, Frederick Fischer, will continue the business under the old firm name.

NAME CHANGED.

SAGE's Carriage Repository succeeds C. B. Sage at Catskill, N. Y. The change is due to the admission of William B. Donohue as a member of the firm. The house was established by Mr. S. B. Sage, who started business in 1883. He was succeeded by his son in 1898. The house is one of the largest on the Hudson, handling carriages and harness.

BYRON J. HOWD.

BYRON J. HOWD, manufacturers' agent, at Paterson, N. J., sends out as a "Happy New Year" greeting the following query:

WHY are the Lady and Gentleman riding by looking so happy?

IT'S BECAUSE they have one of the Elegant Buggies built by the Walker & Stutz Co., of Goshen, Indiana; by skilled workmen, and of the best material. Notice the style and beautiful finish. Study the Catalogue when it comes, and later I will explain the rest.

S. A. F. E. CO.

THE Standard Anti-Friction Equipment Co. have forwarded to us one of their office pictures, consisting of a large plaque as a frame to a colored lithograph of a lady, on which is printed the initials of the company, S. A. F. E. Co. The lady in this particular case is undoubtedly in safe company, and will therefore be retained as an office fixture.

GROTON CARRIAGE WORKS.

GROTON Carriage Works, of Groton, N. Y., well known as manufacturers of a fine line of carriages, has lately been reorganized for the purpose of enlarging the business in order to meet present and prospective demands. In the reorganization Frank Conger, who has been interested in the business from the first, takes a more pronounced position and puts in ample capital to meet all the demands that may arise from largely increased manufacture.



FRANK CONGER, PRESIDENT GROTON CARRIAGE WORKS.

The officers of the new company are: Frank Conger, president; Bruce I. Norton, vice president and manager; Hon. Ben Conger, secretary; J. Conger, treasurer. The capital stock is \$250,000, all paid up. The plant is a large one, a new four story building, 60 x 160 feet, having recently been added. The machinery is of the latest and most approved type and will be kept so, as new machines will be added whenever occasion requires or when a better machine than that



BRUCE I. NORTON, VICE-PRESIDENT AND MANAGER OF THE GROTON CARRIAGE WORKS.

now used is brought out. The power is steam and electric. With the increased and improved facilities and with a manager of the ability of Mr. Norton at the helm, the prospects of the Groton Carriage Co. are bright indeed. The aim will be to produce high grade carriages of the latest styles.

Frank Conger is a man who is apparently endowed with a surplus of that energy and ability of which successful business men are made. He began his business career when a minor and has been a veritable mascot for every enterprise with which he ever became associated. How he finds time to attend to all his duties is the mystery. He is in addition to being president of the Groton Carriage Works, president of the First National Bank of Groton, president of the Universal Safety-tread Co. of New Jersey, president of the American Visible Typewriter Co. of Delaware, president Mechanics' Bank of Groton, director Conger Manufacturing Co. of Groton, and a director in the C. W. Conger Co., and the Conger Produce Co., all of Groton, N. Y.; formerly vice president and general manager of the Highway Contracting Department of the American Bridge Co.

He is also a prominent and active member of the Engineers' and Lawyers' Club of New York City, and the Duquesne Club of Pittsburgh, Pa. He is a high degree Mason and Odd Fellow, and in all his association as a business, club and society man, as well as in social life, Mr. Conger is a man that is sought after and with whom it is a pleasure to be associated. A history of his active life is far too long for our columns, but it covers a period of thirty years, beginning when a boy of thirteen, and includes a series of enterprises and successes that few men of his years have ever attained, and we bespeak for the Groton Carriage Works a success that will soon make the house one of the recognized leaders in its line.

It would be difficult to find a better equipped man than Bruce I. Norton as manager, as his practical knowledge extends through the field of manufacture and sale of carriages. He will be aided by the services of H. J. Lewis as designer and draft-man, and C. B. Van Alstyne as representative for Eastern New York and New England. The company are exceedingly fortunate in the possession of such successful and energetic officers.

OFFICERS FOR 1902.

At the annual meeting of the stockholders of the Standard Wheel Co., Terre Haute, Ind., held December 30th, 1901, the following directors were elected: Demas Deming, Charles Minshall, Edward Sendelbach, Deming Wheeler and B. F. Failey. Deming Wheeler succeeds the late D. W. Minshall, who was president of the company, and B. F. Failey succeeds Crawford Fairbanks. Mr. Failey is the son-in-law of Mr. Fairbanks.

The directors elected the following officers: Charles Minshall, president and general manager; Edward Sendelbach, vice president and sales manager; William Meeker, general superintendent; W. C. Clark, secretary and treasurer; W. H. Crook, auditor and cashier.

SLEIGHS IN DEMAND.

THE return of the old-fashioned weather has depleted the stock of sleighs. C. H. Lohnes, of Saratoga, N. Y., who recently closed out his horseshoeing and blacksmith business, cannot keep up with his orders on speed sleighs. He will devote his attention in the future to wagon and sleigh making, on which he has an established reputation for good work.

THE PAYNE SPEEDING VEHICLES.

THE Payne speeding wagon, long-shaft, sulky and speeding sleighs are vehicles that are worthy of the attention of buyers. The seat of the sulky is so arranged that the weight is taken from the axle. The speeding sleigh is made very wide and the bend of the runners allows the horse to be hitched close. Martin Payne, the manufacturer, will furnish all the desired information. His address is Troy, N. Y.

SOLD TO THE AKRON GEAR CO.

MR. T. H. HOLMAN, of the Holman Gear Co., of Valparaiso, Ind., has sold the stock, fixtures and rights of all the patents of the Holman Gear Co. to the Akron Gear Co., Akron, O., who will dismantle the plant at Valparaiso and move all of the machinery to Akron. Mr. Holman has accepted a position with the Akron Gear Co. as superintendent of the blacksmithing department. Mr. Holman is a man of wide experience in gear and wagon work and a recognized

authority, as he has had many years of experience and is the inventor of some of the best patents now in existence on platform gears.

The Akron Gear Co. is starting out on a large scale and will eventually have the largest exclusive gear manufactory in the United States. They are just putting up an addition to their extensive plant over 100 feet long, and will have it ready for occupancy about February 1st. They now control all of the patents of the Akron gear, the Nichols gear and the Holman gear, and are negotiating for the purchase of two other gear plants. They will not confine their efforts to this country, but expect to establish agencies in all of the larger foreign markets.

CLEVELAND AXLE MANUFACTURING CO.

THE above company, under date of Dec. 17, 1901, writes us as follows:

CANTON, O., Dec. 18, 1901.

Trade News Publishing Co., New York City:

Gentlemen—We are pleased to announce that we partially resumed operation of our factory to-day, and expect to have it going in full by the early part of next week. As we advised you, our forge department was entirely destroyed by fire on the night of November 22. By extraordinary hard work, night and day, we have accomplished the rebuilding of the destroyed portion of our plant within this limited period of less than thirty days. Realizing at all times the embarrassment our fire would cause to our customers, and having their interests chiefly at heart, we spared neither money, time nor effort to again place our plant in operation.

In closing this incident, we desire to sincerely thank our kind friends for the great consideration and generous sympathy extended to us in our misfortune. With the sincere hope that our short suspension has caused but slight inconvenience, and extending to you Christmas greetings, we beg to remain,

Yours very truly,

CLEVELAND AXLE MFG. CO.

NEW MANAGER FOR KEATOR & WELLS.

MR. C. E. THOMPSON, well known in the carriage trade, and who has been located in New York City for several years past in the interest of one of the largest Western concerns in the country, looking mainly after the financial end of their business, has accepted the position of general manager for Keator & Wells, the well known car-



C. E. THOMPSON, GENERAL MANAGER FOR KEATOR & WELLS, CORTLAND, N. Y.

riage, sleigh and omnibus manufacturers, of Cortland, N. Y. Mr. Thompson was at one time connected with various manufacturing industries of Cortland, where he made many friends who, together with those in the trade, will welcome him back. Mr. Thompson is well equipped for the new position and will, without doubt, be a valuable aid to this progressive firm, who promise a new line of goods in addition to their standard favorites for the coming season's trade.

SATISFACTORY TESTIMONIALS.

GROUT BROTHERS, Orange, Mass., have much reason to be pleased with the testimonials received from users of the Grout automobiles, in which they speak of the reliability, power, comfort and economy. Such recommendations, coming as they do from reliable houses, speak volumes for the Grout automobile.

GROUND ROUGH STUFF.

EDWARD SMITH & Co., varnish makers and color grinders, New York, are sending out an illustrated card in colors, in which a group of boys are apparently having a rough and tumble squabble, the whole supposing to suggest ground rough stuff. This rough stuff is one of the company's prized specialties. If you have not tried it now is the time to do so.

THE DIAMOND RUBBER CO. FIRE.

THE following circular letter has been sent out by the Diamond Rubber Co., but since it was issued the company has found that the delay in the repair department would be less than was first supposed, and that a delay of not more than ten days would occur:

AKRON, O., December 19, 1901.

To Our Friends and Patrons:

In order that no doubts may creep into your mind as to our ability to take proper care of your inquiries and orders, owing to a somewhat disastrous fire at our New York branch store on the night of the 18th inst., we write to say that there will be no interruption of business, except on repair work. Although the stock carried at that point was completely destroyed, all surplus stock has been carried at our mechanical branch, No. 15 Warren street, and orders will be filled promptly from there.

The equipment for making repairs was badly damaged by water, so much so that it will be a matter of about thirty days before work of this nature can be handled in New York. In the meantime we kindly request that you send such work to The Diamond Rubber Co., 234 Congress street, Boston; The Diamond Rubber Co., 435 N. Broad street, Philadelphia; The Diamond Rubber Co., 9 W. Seneca street, Buffalo, where it will receive the same prompt attention.

Until further notice please address all New York correspondence to The Diamond Rubber Co., No. 15 Warren street, New York City.

Thanking you for past favors, we are, with much respect,

Yours very truly,

THE DIAMOND RUBBER CO.

THE BUFFALO SPRING & GEAR CO.

ONE of the go-ahead business houses in the carriage trade is the Buffalo Spring & Gear Co., of Buffalo, N. Y. They manufacture vehicles in the white, trimmed or untrimmed, ready for the paint shop, and sell to the trade at prices that are most inviting when the character of the work is considered. The company are ever on the alert for new and improved accessories. Of these, the latest is their new toggle joint shaft coupling and their reservoir self-lubricating axles. Their factory is conveniently located along the New York Central Railroad, from which by a switch the cars can be run upon a track the full length of their factory and lumber yard, thus giving them the best of facilities for handling their products as well as receiving raw material. They have recently increased the facilities of their forging department. Their plant throughout is fully equipped with up-to-date machinery of all kinds needed in their line of business, to increase production and to improve the quality of their goods. They take special pride in producing high grade goods of the most desirable kinds and styles, and by the use of the best material and good workmanship they are enabled to please customers without an increase of cost. They have built up a profitable business by fair dealing and honest work and the prospects ahead are most flattering.

THE STANDARD WELDING CO.

THE above company is located at Cleveland, O., where they manufacture, among other things, steel rims for rubber tires, seamless steel tubes for running gears, reaches, axles, etc. They also make a specialty of special electric welding of automobile parts and findings. Carriage and automobile manufacturers should correspond with the company and learn their full line and prices.

CALENDARS.

WE are in receipt of numerous calendars for 1902. Those received since the issue of the December HUB are a neat lithograph hanger from The Ashton Valve Co., of Boston. The design is neat and pleasing and the calendar pages in white and printed in large block letters in black, makes a desirable office card.

The Cortland Wagon Co., Cortland, N. Y., are sending out an illuminated calendar of six sheets, lithographed in colors, the portraits of popular actresses and their favorite flower being the attractive features. The catalogue is good and the six card group makes an ornamental calendar.

Cately & Etting, Cortland, N. Y., manufacturers of buggy prop springs and levers, are sending out a large illuminated hanger, a female bust in colors and a large calendar of twelve leaves, black body and white figures, a hanger that will be kept.

W. C. Koller, Glen Rock, Pa., carriages and automobiles, sends a large hanger in colors, the central picture being an automobile and two figures of ladies seated therein. The whole is in bright colors and varnished. The calendar consists of twelve sheets of black with white letters.

Cortland Forging Co., Cortland, N. Y., have issued a very neat and attractive calendar, being a large cardboard in grey, with a panel picture in colors of a miss and her flowers on one side, and the firm's name and business in silver, and a pack of monthly sheets on dark printed paper, showing white letters and figures.

Blacksmith & Wheelwright are sending out a neat card hanger with a picture of Mary Manning as Janice Meredith, a pleasing picture in an embossed frame. The calendar is printed in dark olive green and the journal name in red, the whole making a neat office picture.

Emil Calman & Co., varnish manufacturers, New York City, are sending out a hanger calendar in colors, representing a yachting party on deck, other yachts in the distance, a barrel and a can of varnish being also shown on the deck. The calendar leaves are white, printed in plain black letters and figures, making a neat and useful office picture.

The Hume Carriage Co., Amesbury, Mass., are sending out a hanger calendar, consisting of a colored lithograph of a lady seated, robed for summer, the calendar leaves being attached to the lower left hand corner. The hanger makes a pleasing office decoration and the record thereon reminds us that the plant was established in 1857 by James Hume, and which entitles it to be one of the old houses in the fine carriage industry.

Joel H. Woodman, of Hoboken, N. J., manufacturer of built up veneer goods for carriages, etc., has issued the most novel hanger calendar that has reached our office this season, the hanger itself being a wood veneer 14 by 19 inches, backed with a sheet of tissue paper. It illustrates the perfection reached in culling veneers, as the wood itself is about the same thickness as the tissue paper. On the wood is printed a forest tree and landscape together with the name of the manufacturer and the character of the business. A small half-tone reproduction in black and white serves as an ornamental feature. The calendar leaves are attached to the bottom of the hanger.

The old house of Hoopes Bro. & Darlington, manufacturers of fine carriage wheels, heavy and light, at West Chester, Pa., have forwarded us a hanger calendar. The card is an imitation of brown leather, printed and embossed, on which is placed the big wheel, copyrighted, which has so long been recognized as an emblem of this house. The calendar cards are in brown ink on white paper and are sufficiently plain to make the calendar useful in the office.

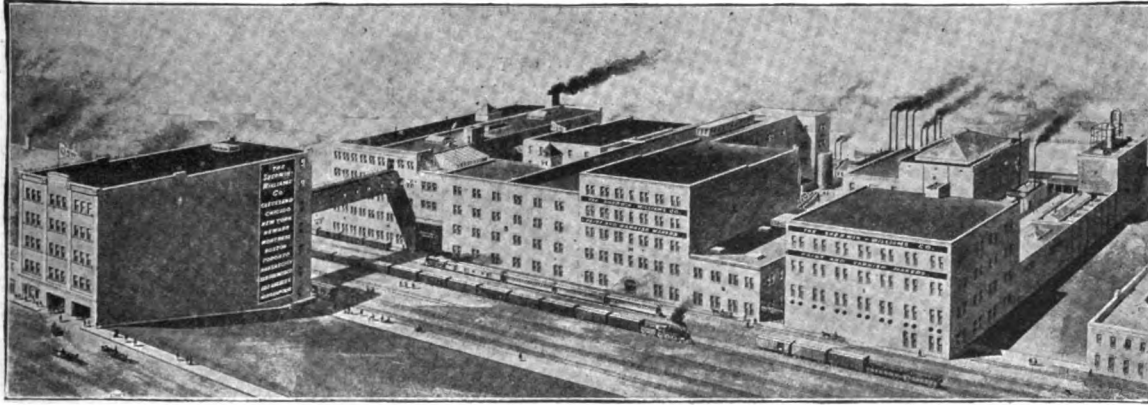
Victerson Varnish Co., New York, manufacturers of fine carriage and other varnishes, are sending out a calendar, illustrating in colors a coaching scene, changing teams; a good office picture. The calendar leaves are affixed to the lower edge and are of convenient size for reference. The company's name and business is printed on one corner and the trade mark on another.

THE PRICE & LEE CO.'S CARRIAGE DIRECTORY FOR 1902.

THE American Carriage and Wagon Directory for 1902, published by The Price & Lee Co., is now ready for delivery. It is a large volume of 676 pages, containing 64,505 names of carriage, wagon, sleigh and automobile manufacturers, also dealers and accessory manufacturers of the United States, together with a list of export and commission merchants. An invaluable book for those who wish to enter into correspondence with business men in the industries it represents. Price, \$6.00, including postage.

A GREAT PAINT PLANT.

THE paint plant of the Sherwin-Williams Co., Cleveland, has grown in a little over a quarter of a century from a small plant, with five or six employees, to a great factory with a floor space of about six acres, at Cleveland, and another large plant at Newark, N. J., together with an extensive factory at Chicago, and another at Montreal, Canada, employing over 100 in all in offices, factories and on the road, nineteen of whom were added during the year 1901, the whole making it one of the largest, if not the largest, paint and varnish houses in the world. So large that on their twenty-first



PLANT NO. 1 OF THE SHERWIN-WILLIAMS CO., PAINT AND VARNISH MAKERS, CLEVELAND, O.

annual convention, an account of which was published in last month's HUB, gave the impression of an industrial convention rather than the gathering of the representatives of a single establishment. The reproduction herewith is from a wash-drawing made during the first week of November, and shows the Cleveland plant exactly as it appears to-day. Unlike most views of manufacturing establishments it is not exaggerated in the slightest degree. It is large enough to be impressive without exaggeration. When it is also considered that this is but one of our four plants it doesn't require much argument to show that The S.-W. Co. is the greatest paint company in the world. Plant No. 1, itself, is probably the largest paint factory in this country.

OUR PATENT LAWS.

A NUMBER of articles have been published lately deriding inventors and setting forth what seems to me to be a narrow minded view of the patent system of this country. These articles must have been written by persons who have not given the matter careful thought. Anyone who today thinks of American inventors as a set of "cranks" and of the patent system of this government as useless, or of little value, is not up to date, and should in the word of the "coon" song, "Go 'way back and sit down," or as the Englishman sung it "retire to the extreme rear and be seated."

Many of these self-appointed critics glibly state that nine-tenths of the inventions for which patents are issued are "failures." The question naturally arises: Where do these critics get their statistics?

I have for years been considering how best to obtain reliable statistics as to what proportion of the large number of patents granted each week cover successful devices, but I have been unable to come to any conviction either as to a practical method of obtaining the proportion of failures or as to just what constitutes "failure." I should be pleased to know how they fix the failures as numbering nine-tenths of the whole number issued?

I have for years examined the weekly issues of patents and from my knowledge of the various arts I have felt inclined to place the number of successes at about one-half of the total, but this is only a guess. I am morally certain, however, that a greater proportion of the issues than one-tenth are successful. I know to almost a certainty that more than one-half the inventions that has passed through my hands in recent years have proven successes, and from many conversations with other attorneys I am led to believe that a general estimate of one-half would not be far wrong.

It is very difficult, too, to define a "success." Each person I have talked to about the matter has seemed to me to have a different idea of the matter. Many confess it with operativeness, or mechanical success, and many again seem to have such an exalted notion of the

term "success" as to apply it only to those patents that bring fortunes. My own idea is that an invention is successful—not merely mechanically operative, but successful—if it has been developed and tested sufficiently to demonstrate beyond a reasonable doubt that it backed by capital to an amount commensurate with its nature and by reasonable energy it would pay to push it. I do not think any other criterion can be set up. It is not fair to say that only those inventions which are exploited on the market in paying quantities are successful, because the successful exploitation requires many more conditions to be present than merely that the invention be practical and that a need exists for it. No matter how much need exists for a

new thing there is much expensive work to be done to create a demand for it, and it is this bugbear that frightens off many intending investors in patents.

It is no doubt true that much labor and money are wasted in inventing and developing inventions that are chimerical and impractical, but this evil is fast being lessened with the spread of knowledge by the trade papers and by the elimination of dishonest patent solicitors. We in Washington see fewer and fewer perpetual motion and aerial navigation cranks as the years go by, and I have a firm belief that a real crank will be a curiosity even to us in a few years. But even when the crop of cranks was greatest, which was probably in the '70's and '80's, the waste resulting from their harmless vagaries was so infinitesimally small compared with the wonderful work wrought by the American inventors that it can be eliminated entirely from any estimate of the value of our patent system.

And this wonderful work that is being done by the best patent system and the greatest inventive nation on earth is wholly due to the enthusiasm which these adverse critics make light of. Nothing would be so calamitous to the industries of this nation as that its inventors should lose faith and enthusiasm in their own creations. I have known this faith and enthusiasm to carry so many inventors through years of toil and privation to success that I shall never cease to marvel at it as a wonderful provision of nature for our advancement.

CHARLES D. DAVIS,

Of Davis & Davis, Patent Lawyers, New York and Washington.

WILL OPEN A LARGE REPOSITORY.

WILBUR VAN FLEET, of Middletown, N. Y., has bought the two-story building built and formerly occupied by H. Blanchard, at 15 Montgomery street, and will occupy same January 1, as a repository. The two floors, 34 x 70 feet each, will have a capacity for ninety vehicles.

P. RIELLY & SON.

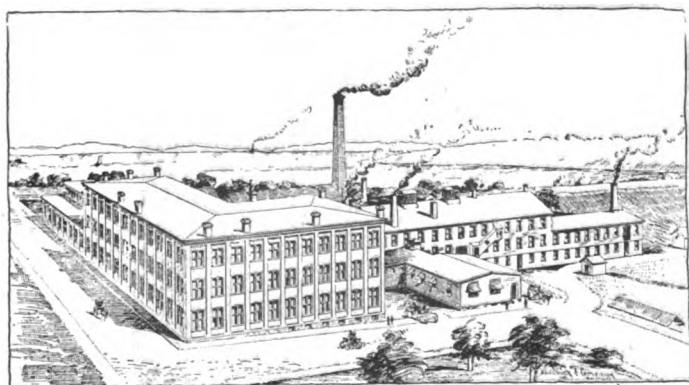
IN our notice in October HUB of the patent leather house of P. Rielly & Son, Newark, N. J., are named John Rielly as president of the company. We are informed by the corporation that this is incorrect, as the president is Patrick Rielly and that John Rielly is not connected with this house.

TUTHILL SPRING COMPANY.

THE Tuthill Spring Co., of Chicago, Ill., has lately bought additional rolls, test, etc., made necessary by their continued increase in business. This firm reports its November business the largest ever done in its history, although this is a slack time in the trade.

LORING COES & CO.

LORING COES & Co., of Worcester, Mass., manufacturers of knives, etc., have erected a new building as an addition to their already extensive plant, which will be used mainly as a factory for the manufacture of a new wrench. The new building is of brick, three stories high, 110 by 50 feet, to which is an annex, 75 by 50 feet. The building is erected in the most substantial manner and so fitted with windows as to give ample light to every part of the work rooms. The wrench business is not a new one with this house, as the first screw wrench was invented by Loring Coes, for which patents were issued to him in 1841. The No. of the patent is 2,050. A Worcester paper, commenting on the enlargement of the factory for the purpose of making



PLANT OF LORING COES & CO.

wrenches, offers the following explanation: "An impression has got abroad that the corporation did not really intend to go into the manufacture of wrenches. Loring Coes, who owns practically all the stock of Loring Coes & Co., incorporated, owns one-half of the stock of the Coes Wrench Company, and is president of that corporation, and the fact that he would be going into competition with himself has given rise to some skepticism as to the report. Owing to the exactly equal division of the stock of the Coes Wrench Company the settlement of matters over which there was a disagreement could not be brought about. Consequently Loring Coes decided that he would do better to manufacture the new wrench as a department of the Loring Coes & Co. business than to sell the patents to the Coes Wrench Company. The house is the oldest wrench manufacturer in the world. The merits of the new wrench are such as to cause the belief that there will be a great demand for the new wrench, which contains several radical improvements, including greater strength." Carriage manufacturers and dealers, both wholesale and retail, are requested by Loring Coes & Co. to send in names and addresses that they may be placed on their mailing list. Requests for prices, lists and cuts of everything in machine knives and the new L. Coes screw wrench will receive prompt attention and correspondence is solicited.

HOLLY WILL SELL ITS PARK.

PROCEEDS TO BE USED AS BONUS FOR WAGON FACTORY.

THE special village election held in Holly, Mich., December 2 for the purpose of voting to plat the village park into lots resulted in favor of the project—yes, 219; no, 25. Although a small vote was polled, the people are almost unanimous in favor of the plan of selling the lots and using the proceeds as a bonus to secure a large wagon factory, capital \$50,000, and as all lots are spoken for at \$150 each the bonus of \$5,000 asked can be readily raised, and the promoters of the factory are ready to build at an early date, a site already having been donated.

THE IDEAL MANUFACTURING CO.

THE advertisement of the Ideal Manufacturing Co., of Oneida, N. Y., in last month's HUB contained an illustration that should not have been there. The correct cut is in this month's advertisement. The company are not ready to put the one illustrated on the market, so in writing them ask for the coupler advertised in January, 1902, HUB. It is A1.

CATALOGUES RECEIVED.

GEORGE WHITE BUGGY COMPANY, of Rock Island, Ill., has issued a very fine catalogue containing numerous illustrations of White line buggies of different types. It is neatly gotten up, and dealers should have a copy.

Ames-Dean Carriage Co., Jackson, Mich., are sending out a forty-page catalogue, illustrated with buggies, surreys, sleighs, etc., such as are manufactured by them. The volume is well printed and enclosed in an illuminated cover. Get a copy before placing your order.

The Flint Wagon Works, Flint, Mich., have issued catalogue No. 19, for 1902. It is an elaborate volume of eighty-two pages, all but one of which carry illustrations, one or more, on each, showing the long line of vehicles manufactured by this house, including buggies, surreys, top and no top; a line of spring and delivery wagons, the spring wagons, for four to six passengers, the illustrations being in half tone, and well printed on fine paper. The cover is in gilt and colors. Better get a copy.

R. D. Scott & Co., Pontiac, Mich., are out with their catalogue for 1902, No. 12. The cover is embossed and in gold and colors, with a bird's eye view of the factory on the back. There are seventy-two pages of printed matter, cuts and text, all but four containing vehicle illustrations, showing buggies, surreys, phaetons, spring and delivery wagons and carts; a varied and extensive line that dealers can handle to an advantage, and all should have a copy.

Fouts and Hunter Carriage Manufacturing Co., Terre Haute, Ind., have sent us a package of finely printed sheets, illustrating a few of their favorite styles of vehicles; all are half-tone and well printed. Each leaf contains a cut of the vehicle on one page, and a description of the same on the back. They consist mainly of new designs of the latest styles of carriages, and include numerous novelties. A line that dealers handling high grade work should carry. Write for a package.

The Columbus Vehicle Company, Columbus, O., a package of 100 plates, a part of which are in colors, illustrating and describing a line of standard and special vehicles manufactured by them, among which are buggies, pneumatic and plain gears; driving phaetons, traps, surreys, pneumatic and plain perch gears. This line is known as "Our American Beauties," and appeals to a high class trade. As a description accompanies each, dealers can learn all that is necessary to enable them to determine their fitness for individual markets.

NEW METHOD OF HARDENING STEEL IN GERMANY.

VICE-CONSUL-GENERAL MURPHY sends from Frankfort, November 23, 1901, translation from the Frankfurter Journal, as follows:

"The Technical High School in Charlottenburg has just completed a series of experiments with a new method for preparing steel, and the result will no doubt attract much attention in interested circles. Experts claim that this new invention may revolutionize the entire metal industry. The inventor, named Giebler, is a small manufacturer in Mecklenburg, who has for years been interested in this new process, but was unwilling to bring it before the public until it had been thoroughly tested by experts. The results reached at the Technical High School were most satisfactory. By the Giebler process, all sorts of iron can be given strength and hardness double that obtained by the Harvey, Krupp, and Bohler processes, in spite of the fact that the cost of production is reduced 50 per cent. Projectiles fired against a 7/4-millimeter (0.305 inch) sheet of steel produced by the Giebler process, penetrated only to the depth of 1 millimeter (0.039 inch), while a similar sheet of Krupp steel was completely penetrated. With sword blades of this material, other sword blades can be shattered as if they were made of wood. A representative of Mr. Giebler will start next week for Pittsburg to bring the invention to the attention of the great steel kings of America.

THEIR WESTERN REPRESENTATIVE.

THE Brown-Lipe Gear Co., Syracuse, N. Y., have just arranged with K. Franklin Peterson to act as their sales representative in Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, Minnesota, and Missouri. Mr. Peterson's headquarters are at 165 Lake street, Chicago, Ill. He is one of the oldest and most successful salesmen in bicycle lines, and of late in automobile lines. He also represents the same capacity the Baldwin Chain Co., American Roller Bearing Co., and the Midgley Mfg. Co.

REX BUGGY COMPANY.

THE Rex Buggy Company, of Connersville, Ind., has increased its capital stock from \$65,000 to \$100,000. The remarkable increase in the business of the company and the prospects ahead have been the causes of this. A few short years have passed since the company was organized, and from the very start fortune seemed to smile upon them, and their plant has been running constantly ever since to its fullest capacity. Time and again additions have been made to their plant, and notwithstanding this fact and with enormously increased facilities it has been with the utmost difficulty that they have kept any where near up with their orders. The new member of the firm, who comes in with the increased capital, is E. W. Ansted, owner of the Ansted Spring Works, the Connersville Axle Works and is president of the Central Manufacturing Company, the latter being engaged in the manufacture of buggy bodies. It is the intention of the company to keep up with the demands made upon it, and is making the name of Connersville well known as a carriage manufacturing center. The Rex Buggy Company can attribute much of their success to their hustling abilities and their unique and splendid advertising methods. Their "Are You With Us?" is a by-word among all the buggy people in this country and the press of almost every large city in this country has commented upon it. The Rex Company is to be congratulated upon their enterprise, and it is with much satisfaction that we chronicle the event which has just transpired.

THE BEARDSLEY & HUBBS MFG. CO. MOVE.

THE Beardsley & Hubbs Mfg. Co., formerly of Mansfield, O., is now located at Shelby, O., having moved into one of the best equipped and most modern factories for the manufacture of automobiles in the country. Their new three-story brick building is at the junction of the B. & O. and Big Four tracks, and consequently the shipping facilities are of the best. It is equipped throughout with new and up-to-date machinery. The capital stock of this company has been largely increased, and with their present modern and up-to-date factory the manufacture of automobiles will be pushed with great vigor. Col. D. L. Cockley, so well remembered as the organizer and first president of the Shelby Steel Tube Co., is president of the concern. The other officers are J. P. Forbes, vice-president, and Volney S. Beardsley, treasurer, and general manager. Shelby itself, with its miles of asphalt pavements, is regarded as an ideal town for the manufacture and demonstration of its machines.

PONTIAC, MICH., TO HAVE WAGON FACTORY.

PONTIAC factory men are in the field for a wagon works, one that manufactures farm and heavy wagons. All other kinds and styles of vehicles are manufactured here, and the result is that when the big western buyers land in Pontiac they can fill all their wants with the exception of the heavy wagons. Vehicle men consider that a wagon works to take care of this branch of the industry would add materially to their success, and at the same time help Pontiac. One or two meetings have been held to discuss this subject, and an attempt will be made to secure such an enterprise.

MEETING OF SPRING MANUFACTURERS.

THE *Detroit Free Press* of December 12 says:

Quite a large number of manufacturers of vehicle springs from various States in the Middle West met at the Hotel Cadillac yesterday to form an organization for "mutual helpfulness," as one of the representatives expressed it. The manufacturers deny that the organization is in any way a trust, though that a "combination for certain purposes" was effected is not denied.

"THE TEAMSTER."

"THE TEAMSTER" is the title of a new publication that takes for its field the interests of transfer and truck companies and hauling and teaming in the United States and Canada. No. 1, Vol. 1 is before us, and while its publisher is modest in promises, yet there is enough said to warrant the belief that this youngster may live to become a stalwart, and to be useful in the field which it has chosen. It is published monthly, beginning with January 1, 1902, at Pittsburg, Pa. Ernest H. Heinricks is publisher, and Walter A. Young business manager. Subscription price \$1 a year.

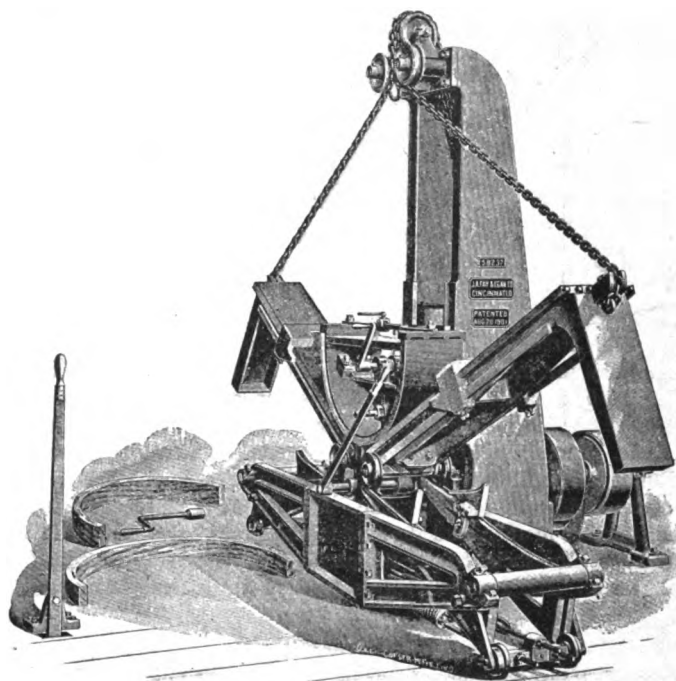
RATTAN GOODS.

THE Rattan Novelty Co., of Indianapolis, are makers of Rattan seats, trunks and hampers for the carriage trade. These seats have been used more or less for many years, but they never attained great popularity for several reasons. They were generally coarse in appearance, and therefore instead of appealing favorably to the buyer they caused dislike and criticism. They were too expensive also. No one person made a complete seat, and it was too much trouble to have the frame made in one place and the wickering in another. The Rattan Novelty Co. has overcome all this, and now make these seats a specialty. They have made it a careful study and have succeeded in placing these seats on the market to-day. The material used is the best obtainable, and is correct, and the finish such as to not only attract attention, but to receive the highest praise wherever seen. An important point is that the company is able to furnish the well-made products at no greater expense than that of other seats. Write them for prices and special designs.

PATENT AUTOMATIC BENDING MACHINE.

THIS cut shows a machine newly invented, new in design, and newly patented, being patented August 20th, 1901. The makers of this machine have been continually designing machines of this character, and after much experimenting, combined with new inventions, they claim they have now brought out a machine for bending purposes that is without doubt the best now on the market, and able to answer the most particular requirements. The following are some of its advantages:

1. It will bend felloes for wagon and carriage wheels, wagon hounds, reaches, etc., to advantage, bending felloes for 300 to 360 sets of wheels in 10 hours, and other work in proportion; as many pieces can be bent at a time as will the width of the receiving strap, which is 12 inches.



NO. 54 PATENT AUTOMATIC BENDING MACHINE.

2. Range of work is 12 inches wide, and 4 inches thick, and it has the required adjustments to bend circles from 24 to 72 inches. The material must first be cut to lengths desired, and then placed on the receiving strap, provision being made for securely holding the wood.

3. The metal frame is very substantial, and uses little floor space. The bending pressure is supplied by three powerful compression springs.

4. The iron forms turn to any circle within range of machine. The bending arms have their inner ends mounted on iron ways, the arrangement of the mechanism insuring at all times an even pressure.

The builders of this machine, J. A. Fay & Egan Co., of No. 421 to No. 441 West Front street, Cincinnati, O., will be pleased to send cuts showing the machine to advantage and more in detail, as well as full particulars and special terms, and also their large new combined and complete catalogue, showing this and every other machine they make, free to those interested.

Obituary.

JOSEPH POMEROY.

Joseph Pomeroy, of the firm of Pomeroy & Fischer, varnish and color dealers of New York City, died of diabetes, at his home in Mt. Vernon, N. Y., on December 16th, 1901, aged 52 years. Mr. Pomeroy was born in London, England, December 15th, 1849. He entered the employ of Nobles & Hoare, varnish and color makers, and represented the firm as traveling salesman, and in their interests visited the various countries in Europe, and the United States, Canada and the West Indies in this side. He was a linguist and could converse in the languages of the countries he visited. His success



JOSEPH POMEROY,

Born December 15, 1849; Died December 16, 1901.

as a representative on the road was marked, and in 1886 he, together with Frederick Fischer, formed a copartnership and took the sole agency for the United States for the firm of Nobles & Hoare, under the firm name of Pomeroy & Fischer, and in addition to their agency of the English house, they were importers of colors, white lead, etc. Mr. Pomeroy was intensely loyal to the trusts imposed and until his health began to fail, about three years ago, was a most energetic and active business man. Mr. Pomeroy married the sister of his partner in 1889, and the two families ever since resided in the same house, the social life of the partners being equally congenial as the business. Mr. Pomeroy leaves a widow and a young daughter.

JOHN T. PARSONS.

JOHN T. PARSONS, a prominent business man of Oil City, Pa., died at his home on November 11th, after a week's illness from pneumonia. Deceased was born in Canada in 1836. He located in Oil City when a young man, engaging in the carriage building business. He was a leader among Prohibitionists, and in 1906 was nominated for mayor by that party, receiving a flattering vote.

JACOB RUCH.

JACOB RUCH, 62 years old, one of the oldest vehicle manufacturers of Pittsburg, Pa., died at his residence, 253 Meyran avenue, early on November 22. His health had been poor since last June, but he did not become very ill until about four weeks ago. He was being treated for muscular rheumatism and heart trouble, but it is thought that pneumonia was the real cause of death. He was a son of Jost and Elizabeth Ruch, and it was after his father that Ruch's Hill was named. The decedent served three years in the Civil War under Capt. W. W. Fulwood, with Company M, One Hundred and Second Regiment, Pennsylvania Volunteers, entering as a private and leav-

ing as sergeant. At the close of the war he went into the carriage business on Fifth avenue, Sixth ward, and about seven years ago became vice-president of H. Lange & Co., wagon makers.

CALVIN SINCLAIR.

CALVIN D. SINCLAIR, treasurer of the Mitchell-Lewis Wagon Company, Racine, Wis., and well known to the wagon trade of the United States, died on December 16 of a complication of diseases. Mr. Sinclair was born in Bangor, Me., and was 68 years old. He was educated in that State. When a young man he went West, and located in Racine in 1856. In 1861 he went to British Columbia prospecting, and made considerable money. He returned to Racine in 1867 or 1868, and commenced work for Mitchell & Co. In 1880 the Mitchell-Lewis Company was incorporated. Mr. Sinclair was elected its treasurer, and held the place up to his death. He was also interested in the Wisconsin Wheel Works, and other factories, and was a vice-president of the First National Bank. He was one of the most heavily insured men in the city, carrying a policy, it is said, of \$50,000 in an insurance company of Milwaukee.

EXPIRED PATENTS.

THE following list of patents, trade-marks and designs of interest to our patrons are furnished by Davis & Davis, solicitors of American and foreign patents, Washington, D. C., and St. Paul Building, New York City. A copy of any of these may be had for 10 cents by sending to the above firm.

PATENTS EXPIRED OCTOBER 7, 1901.

- 306,047—Thill-Coupling—R. B. Ayres, St. Louis, Mo.
- 306,061—Shifting Rail for Buggies—H. B. Crandall, Homer, N. Y., assignor of one-half to W. F. Hitchcock, same place.
- 306,110—Wagon Bed—W. T. Schenck, Maroa, Ill.
- 306,327—Vehicle Hub—K. H. Elliott, Burlington, Vt.

PATENTS EXPIRED OCTOBER 14, 1901.

- 306,409—Vehicle Spring—S. W. Ludlow, Cincinnati, O.
- 306,416—Vehicle Axle—P. H. McNamara, Taunton, Mass.
- 306,426—Platform Spring—W. L. Rayment and G. W. Dean, Quincy, Mich.

PATENTS EXPIRED OCTOBER 21, 1901.

- 306,749—Thill-Coupling—J. Herron, Olney, Ill.
- 306,750—Lug for Carriages—B. B. Hill, Lowell, Mass.
- 306,756—End Gate for Covered Wagons—W. Howard, Worcester, Mass.
- 306,770—Vehicle Spring—L. Pentz, Canton, O.
- 306,852—Wagon Running Gear—J. Moses, Lapeer, Mich.
- 306,853—Wagon Running Gear—J. Moses, Lapeer, Mich.

PATENTS EXPIRED OCTOBER 28, 1901.

- 307,089—Draft Even for Wagons—F. Brechting, Grand Rapids, Mich.
- 307,090—Tongue Support—F. Brechting, Grand Rapids, Mich.
- 307,168—Two-Wheeled Vehicle—J. A. Biltz, Pleasanton, Cal.
- 307,181—Carriage Axle—J. Dahn, East Toledo, O.
- 307,257—Wagon End Gate—G. N. Bacon, Harrisburg, Pa.
- 307,302—Adjustable Sleigh Shaft—I. V. Hicks, Kalamazoo, Mich.

PATENTS EXPIRED NOVEMBER 4, 1901.

- 307,432—Two-Wheeled Vehicle—B. Burr, Chicago, Ill.
- 307,510—Vehicle Running Gear—Whitman, San Francisco, Cal.
- 307,546—Vehicle—R. Hoffman, Cohoes, N. Y.
- 307,566—Buggy Spring—C. J. Miller, Mount Kisco, N. Y.
- 307,567—Automatic Wagon Brake—F. W. Moldenhauer, Ashippan, Wis.

PATENTS EXPIRED NOVEMBER 11, 1901.

- 307,752—Fifth Wheel for Wagons—J. T. Diugine, Chicago, Ill.
- 307,789—Vehicle Hub—T. S. Miller, The Grove, Tex.
- 307,803—Bow for Carriage Tops—I. M. Ritter, Cleveland, O., (administrator of A. C. H. Ritter, deceased), assignor to E. A. Raymond, Grand Rapids, Mich.
- 307,943—Two-Wheeled Vehicle—A. Hoffman, Indianapolis, Ind.

PATENTS EXPIRED NOVEMBER 18, 1901.

- 308,104—Seatlock for Vehicles—A. E. Steel, Lake City, Minn.
- 308,113—Vehicle Seat—J. Walton, Olive, N. Y.
- 308,137—Two-Wheeled Vehicle—L. S. Clark, Doylestown, O., assignor of three-fourths to O. G. Franks and G. T. Baughman, both same place, and J. H. Warren, Lodi, Ohio.
- 308,162—Two-Wheeled Vehicle—J. Howell, Jackson, Mich.

PATENTS EXPIRED NOVEMBER 25, 1901.

- 308,425—Spring Whiffletree—C. B. Morse, New York, N. Y.
- 308,531—Vehicle Axle—J. O. Therien, Minneapolis, Minn.

PATENTS EXPIRED DECEMBER 2, 1901.

- 308,622—Clip for Vehicle Wheels—R. Meloy, Memphis, Ind.
- 308,685—Axle Gage—H. McQuary, Allandale, Ontario, Canada.
- 308,782—Support for Carriage Shafts—W. H. Miller, Providence, R. I.
- 308,802—Standard for Wagons—J. M. Roberts, and B. W. Case, Brownsville, Ind.

308,806—Wagon Body—E. C. Sawyer, Beverly, Mass.
308,846—Vehicle Spring—T. Lumsdon, Marion, Va.

PATENTS EXPIRED DECEMBER 9, 1901.

308,971—Seat Lock—G. Mailbach, Tremont, Ill.
308,972—Vehicle Running Gear—H. Mankel, Jr., McKean, Pa.
308,997—Vehicle Brake—T. J. Scott, Ashland, Miss.
309,048—Buckboard Wagon—C. B. Hynes, North Adams, Mass.

RECENT PATENTS RELATING TO THE CARRIAGE TRADE.

669,373—Vehicle Axle Nut—George E. Stein, Wheeling, W. Va.
669,247—Spring Gear for Vehicles—David True, Amesbury, Mass.
669,248—Spring Gear for Vehicles—David True, Amesbury, Mass.
669,739—Tire—James C. Anderson, Highland Park, Ill.
669,505—Thill-Coupling—Charles Cathan, Beloit, Kan.
669,822—Motor-Vehicle—Thomas B. Dooley, Malden, assignor to E. D. Wiggins, trustee, Boston, Mass.
669,825—Carriage Door Latch—John P. Edwards, Bar Harbor, Me.
669,937—Wagon-Rim Adjuster—Wm. W. Endicott, assignor of one-half to S. B. Hermann, Myrtlepoint, Ore.
669,521—Running Gear for Vehicles—Edward Gordon, Uniontown, Pa.
669,692—Vehicle Tire—Morton Harloe, Hawley, assignor of one-half to W. S. Bloes, Peckville, Pa.
669,793—Spring Vehicle Wheel—Wm. C. Hilliard, Spartansburg, Pa.
669,699—Hame-hook—Don Jackson, Pleasant Grove, California.
669,585—Motor-vehicle, Hub and Axle—August Krastin, Cleveland, Ohio.
669,532—Wagon and Gate—Henry Leon, Unionville, Mo.
669,653—Means for Attaching Motors to Vehicles—Wm. W. Morse, West Orange, N. J.
669,663—Transmitting and Steering Mechanism for Motor Vehicles—Alfred Riegel, Paris, France.
669,962—Steering Mechanism for Motor Vehicles—Henry F. Shaw, West Roxbury, Mass., assignor to Automobile Steering Company, Jersey City, N. J.
669,557—Motor Vehicle—Arthur L. Stevens, New York, N. Y.
669,814—Vehicle Wheel—Otto Teigen, Lowry, Minn.
669,870—Dumping Wagon—Thomas Wright, Jersey City, N. J.
670,268—Vehicle Top—Albert Braun, Allegheny, Pa.
670,193—Sand-band for Vehicle Wheels—Andrew J. Brown, Oklahoma City, Okla. Ter.
670,048—Vehicle Wheel and Axle—Morton G. Bunnell, assignor to F. C. Austin, Chicago, Ill.
670,127—Foot Support for Wagon Boxes—Edgar O. Butterfield, Marseilles, Ill.
670,310—Pneumatic Hub for Wheels—Theophilus Coad, London, England.
670,315—Dumping Vehicle—Wm. H. Eynon, Niles, assignor of one-half to D. F. Anderson, Youngstown, Ohio.
670,273—Vehicle Spring—Arthur Falkenhainer, St. Louis, Mo.
670,358—Thill Support—Robert T. Gillespie, Rochester, Pa.
670,405—Motor Vehicle—Rudolph M. Hunter, Philadelphia, Pa., assignor to Tractor-Truck and General Power Company of New Jersey.
670,108—Combined Antirattler and Shaft Supporter—Joseph A. Minturn, Indianapolis, Ind., assignor to W. E. Hoyt, New York, N. Y.
670,085—Driving and Steering Gear for Motor Vehicles—Harry A. Spiller, Boston, Mass.
670,121—Running Gear for Automobiles—Wm. Van Wagoner, assignor to Century Motor Vehicle Company, Syracuse, N. Y.
670,189—Starting Mechanism for Automobiles—Henry Wilcke, Detroit, Mich., assignor of one-half to J. A. Robinson, Armley, England.
34,252—Design, Motor Bicycle Frame—Joseph W. Parkin, Philadelphia, Pa.
Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.
672,875—Sparkign Igniter for Explosive Engines—Abraham Bath, assignor to Safety Three-Wheel Vehicle Company, New York, N. Y.
672,670—Steering Device for Motor Vehicles—Stuart E. Freeman, St. Louis, Mo.
672,550—Buggy Seat, Elizabeth A. Gregory, assignor of one-half to N. Neeley, Craig, Mo.
672,704—Dumping Wagon—Wm. J. Hall, New York, N. Y.
672,620—Vehicle Steering Mechanism—James P. Horton, Denver, Col.
672,856—Whiffletree—Jephtha W. Hunter, assignor of one-half to W. Washburn, Mount Sterling, Ill.
672,775—Combined Antirattler and Thill-Coupling—Edwin Jarrell, assignor of one-half to J. McArdle, Riverdale, Kan.

Trade News.

BY UNCLE SAM.

ALABAMA.

HUNTSVILLE—The deal has been closed for the location here of a \$150,000 spoke factory to employ 200 hands. The capitalists who will establish the plant are Jos. Michener and W. E. Henderson,

both of Troy, Ala. The new industry will probably be located in West Huntsville. Messrs. Michener and Henderson have decided to make Huntsville their permanent home. They own a number of woodworking establishments in Alabama and this city will be their headquarters. The Chamber of Commerce has been at work on this deal two or three months and several other towns tried to get it also. However, the advantages of an unlimited supply of the timber demand and good facilities caused the gentlemen to decide upon this city. The new plant will not manufacture handles, but will make spokes. This will require oak wood and a first-class market will be created for this timber.

ARKANSAS.

ROGERS—The Rogers spoke factory did not commence work this year until the middle of September, but it, too, has been doing its share toward helping keep our people employed. Up to date it has used up some thirty carloads of raw material and has turned out eight cars of finished spokes. Two of these cars represent eighty thousand wagon spokes, and the other six represent three hundred and sixty thousand buggy spokes. The factory is using about twenty men.

COLORADO.

PUEBLO—James A. Davis, industrial agent of the Santa Fé, has completed arrangements with W. H. Schofield, representing the Colorado Steel Wagon Co., by which the latter will begin work at once to put up a \$350,000 plant at Pueblo for the manufacture of steel wagons. The wagon company has been guaranteed a rate that will give them the entire area from Kansas west to the Pacific Ocean to work with. The Colorado Fuel and Iron Company will furnish the company with steel, but beyond that the two concerns will be independent of each other. Mr. Schofield, who controls the patents, was about to locate at Birmingham, Ala., when Mr. Davis persuaded him to come to Colorado.

CONNECTICUT.

CENTERBROOK—Henry Brockway is about to build an addition to his carriage repository of some 30 feet, which will make the building 60 x 22 feet, two stories.

FLORIDA.

JACKSONVILLE—Chapman's carriage factory, which went up in the flames on May 3d, on the corner of Main and Church streets, is back again at the same old stand, better equipped for the manufacture and repair of vehicles of all kinds than ever before, where the same good, reliable work can always be had. Mr. F. A. Chapman, the proprietor, has leased the large two-story brick building he is now occupying for a term of years, and will fit it up as one of the best establishments of the kind in the South.

ILLINOIS.

CHICAGO—Illinois Carriage Lamp Company, incorporated; capital, \$2,500; object, manufacturing carriage lamps and carriage trimmings; incorporators, C. A. R. Griesse, Fred Griesse, Ida Freitag.

MOLINE—Theo. Starks has accepted the vice presidency of the Racine Wagon & Carriage Company, of Racine, Wis., as his choice of many flattering and unsolicited offers. He will have general supervision, particularly in the trade department. The company manufactures an endless variety of buggies, surreys, stanhopes, phaetons, ambulances, etc. It is one of the biggest of its kind and has branches and repositories at Chicago, Kansas City, Minneapolis, Omaha, Des Moines, Charles City, Iowa; Stockton, Cal.; Los Angeles, Denver and Portland.

INDIANA.

GOSHEN—George D., W. R. and W. D. Lewis, of McFall, Mo., and Frank Osborne, of Maryville, Mo., have taken \$50,000 stock in the A. W. Walker-Stutz carriage factory, and the company will be reorganized and the plant enlarged.

MUNCIE—A new firm has been organized here for the manufacturing of wagons, carriages and other vehicles. The members are Henry Bruck and George W. Bower. They are at present negotiating for the purchase of a site on which to locate the factory. The location will probably be in the south part of the city. It is the intention of the firm to put up a modern factory building and carry on an extensive business. The work of construction will proceed as rapidly as possible after a site is chosen. Mr. Bower was formerly a dealer in carriages and vehicles in East Main street and but recently sold out. Mr. Bruck has been connected with C. Heckenhauer & Company, carriage manufacturers. The new firm is experienced and combines all the qualifications for a successful venture.

SOUTH BEND—At a meeting of the board of directors of the Studebaker Manufacturing Company on December 3d, the following officers were elected: President, J. M. Studebaker, Sr.; first vice president, George M. Studebaker; treasurer, Clement Studebaker, Jr.; secretary, J. M. Studebaker, Jr. N. J. Riley remains second vice president. The will of Clement Studebaker was admitted to probate to-day. The estate is worth several million dollars, and is divided among his wife and children. Six thousand shares of stock in the Studebaker Manufacturing Company is divided equally among Colonel George M. Studebaker, Mrs. Charles Arthur Carlisle and Clement Studebaker, Jr. Each is also given \$5,000 in cash. Ten thousand dollars is given to each of seven grandchildren, and provision made for their education. The remainder of the estate goes to his wife, and \$25,000 a year is set aside for her. No bequests are made to charity, but members of his family are requested to make such gifts as they should, considering their financial condition.

IOWA.

DUBUQUE—A petition was read from the Ernsdorf Buggy Company, a new corporation that proposes to build and operate a buggy factory in Dubuque, the plant to be located between Pine and Elm streets and Sixteenth and Seventeenth streets, asking that their property be exempted from taxation for a period of ten years. On the motion of Ald. Kintzinger it was cut down to five years. An amendment offered by Ald. McLaughlin making it date from 1903 was carried. Before this was done, however, Mr. Emil Ernsdorf, who was present, addressed the council as follows: "Gentlemen: We propose to erect a four-story brick building, with basement, the dimensions to be 80 x 100 feet, to be used for our factory. The force of men we will employ will number 200, many of whom will be skilled mechanics who will draw big wages. If you see fit to exempt our taxes we will commence to erect our plant next week. Another petition from the Ernsdorf Buggy Co. was received asking that the alley in the block upon which they wished to build be vacated. The prayer of the petition was granted."

WATERLOO—At a meeting held on December 12th arrangements were completed for the erection of a carriage factory in this place. It will be a two story building, 120 x 150, instead of the 60 x 140 feet previously announced. It is to be ready for operation by July 1st, 1902, and employment will be given to not less than fifty men for a period of five years. The company will be capitalized at \$100,000, of which \$50,000 is paid up. The chief promoters of the new industry and the men who will be at the head of the business are Mr. Wilson, of the Wilson-Galloway Co., of this city; P. L. A. Ferguson, of Des Moines, and a gentleman from New York. They are men of experience both in the manufacture and sale of vehicles and are backed by unlimited capital. They expect to manufacture not less than 5,000 jobs the first year of business. The site selected is a very desirable one, being adjacent to the lines of the B., C. R. & N. and the C. G. W. Railroads, affording the best possible facilities for the shipping in of the raw materials and shipping out the manufactured product.

KENTUCKY.

HENDERSON—The Henderson Business Men's Association is to be congratulated. Through untiring efforts of the association, and especially the efforts of the secretary, George D. Givens, a splendid manufacturing enterprise has been secured for Henderson—the McCallum Steel Wagon Works. This enterprise will employ about one hundred men, and will run full blast the year round. Some months ago the inventor, Mr. McCallum, came to Henderson and exhibited on the streets one of the steel wagons. The wheels are cast solid, of scrap steel, hence there is no tire to get loose, to be set every time the weather is dry. The tires are made to suit the purchaser, any width, from two to four inches. The spindles on which the wheel run are perfectly straight, instead of tapering as the old wagon is made. Inside the hub there is a thimble, or cuff, that when worn may be replaced with small cost. The wheels are perfectly straight and may be placed on the spindle with either side out. Every part of the vehicle is of steel and is almost indestructible. The company to manufacture the wagon here will be capitalized at \$100,000. Fifty thousand of this amount was taken by Henderson's best business men, all of whom feel that there is a bright future for the enterprise.

LOUISIANA.

JENNINGS—The Lake Charles Carriage and Implement Co. are getting in readiness to lay the foundation for their new brick building on the same site as before the fire.

NEW ORLEANS—J. J. Thomas is having plans made for the construction of a two story brick building on the site now occupied by the Crowley Carriage and Implement Co. The building will be 50 feet front on Parkerson avenue, and will be a handsome structure.

MAINE.

JONESPORT—G. H. Parker & Son have opened a new carriage factory and work shop. This is the first carriage shop that been opened here for a long time, and will be much appreciated by the public.

LEWISTON—Messrs. S. A. Miller and F. M. Taylor, of Auburn, are erecting a carriage factory on Knight street. These two gentlemen are well known as carriage manufacturers and are planning to carry on an extensive business.

HAVRE DE GRACE—The carriage factory of Messrs. Walter E. Burns & Bros. occupies a most enviable position. This house was established in 1890, the firm being composed of Messrs. Walter E., J. Isaac, R. Norris, Alfred G. and Charles B. Burns. They began in a small way the manufacture of various kinds of vehicles and their energetic and progressive methods resulted in a short time in the recognition of the excellence of their output and the consequent ready sale of their goods, so that to-day their carriages, etc., are in use not only through Maryland, but in Pennsylvania, New Jersey and Virginia and have also reached New York, St. Louis and Chicago. The growth of their business, which has been most gratifying, is largely due to the fact that each member of the firm has some special branch of the work under his personal supervision, and in this way good and careful workmanship in every detail is assured. Their phenomenal success, resulting in the extensive increase in the demand for their goods, has necessitated the enlargement of their factory from

time to time. Their works cover a large area of ground, the factory being a substantial four story structure, which is a model of completeness in its equipment for manufacturing purposes.

MASSACHUSETTS.

ANDOVER—George W. Bailey, who recently began business for himself as carriage wood worker, etc., in the little shop on Park street just beyond the Park street stables, has gone out of business to accept a better position elsewhere.

The new firm of Morrison & O'Connell, located in the old Harriman blacksmith shop at the rear of the Tuttle & Morrison building on Park street, have been doing a splendid business in horseshoeing, carriage iron working and general jobbing. The workmanship of both Mr. Morrison and Mr. O'Connell is too well known to need words of commendation. Mr. O'Connell has been located at this shop for the past seventeen years or so, having been with Harriman for many years and afterwards with Tuttle & Morrison.

GREAT BARRINGTON—John Stephenson, carriage dealer here for the past year or more, has filed a petition in bankruptcy with liabilities scheduled at \$5,636 and assets of \$2,500. On secured claim amounts to \$1,000; the unsecured claims to \$4,474. James S. Moore holds a mortgage on the stock for \$1,000. The larger unsecured creditors are Conchas Wagon Works, \$320; Columbus Vehicle Co., \$577; Geneva Wagon Co., \$471; Richardson Manufacturing Co., \$388. There are about fifty creditors for smaller amounts. The only important item of assets is the petitioner's stock in trade, \$2,300.

NORTH SCITUATE—T. T. Marston has rented the Wentworth shop for carriage building and repairing.

SOMERVILLE—Charles D. Ruggles, carriage woodworker, has filed a bankruptcy petition. He owes \$377.35, with no assets.

MICHIGAN.

KALAMAZOO—The excavations for the Michigan Buggy Co.'s new plant on the Reed farm south of the city are almost completed, the foundation will soon be laid and the building will be completed during the winter. It will be 200 x 60 feet, three stories high and built of brick. A large purchase of land has been made to secure room for lumber yards, the new building being designed for a woodshop to take the place of the old denBleyker shop. The site which the company first intended to occupy near the river was abandoned for this one which gives connections with the G. R. & I. road and ample room for the lumber yard.

MINNESOTA.

ST. PAUL—The Banner Wagon Co., whose business will be the manufacture of wagons, etc., has been incorporated with a capital stock of \$25,000 by W. S. Graves, Charles D. Beach and S. E. Quinn, all of St. Paul.

MISSOURI.

KANSAS CITY—The Grand Avenue Carriage Co., of Kansas City; capital stock, \$6,000. Incorporated by J. L. Mayers, S. J. Jarvis and F. Jarvis.

MEXICO—Fire destroyed the foundry and wagon factory here on November 20th. The loss is estimated at more than \$5,000; insurance, \$1,200. The factory has just been completed. It was established by J. J. McNulty, of Randolph, assisted by the citizens of this town.

ST. LOUIS—Cook Bros. Carriage Co. has filed notice of an increase in capital stock from \$10,000 to \$50,000, the increase being paid. The company's assets are \$50,000 and it has no liabilities.

The Moon Buggy Co. is erecting a building at Main and Douglas streets, on which the excavation is now in progress. The addition will be four stories high and will cost about \$15,000.

NEW HAMPSHIRE.

UNION—A mill 40 x 120, for the manufacture of hubs, will be built here.

CRAWLEY'S FALLS—The carriage factory of Robert Rowe's Sons was destroyed by fire on December 13th together with much other property. Rowe's Sons' loss is estimated at \$15,000, partially covered by insurance. The books, which were in the safe at Rowe's Bros.' office, were saved, but all else went up in smoke. One of their buildings was comparatively new, while the other had stood for some years. The cause of the fire is unknown.

NEW JERSEY.

HACKENSACK—F. C. Dunn has found it necessary already to enlarge his carriage repository. The contractors are now at work on a big two story addition between the brick and frame building on Bridge street. Mr. Dunn carries a fine assortment of vehicles.

NORTH CAROLINA.

HIGH POINT—H. L. Bickford and others, of Concord, N. H., will establish a factory here for the manufacture of carriage, wagon and buggy wheels.

The High Point Buggy Co. has been organized to do business with a capital of \$125,000.

NEW YORK.

ALBANY—The Victor Wagon Works Co., which has leased one of the old Eagle foundry buildings on Green Island, is making extensive improvements to the building and will occupy it December 15th.

BATAVIA—Dr. W. C. Gardiner, who recently resigned as a director and vice-president of the Batavia Carriage Wheel Co., has

purchased the Colt clamp business successfully conducted many years by that company. He will have the clamps made at the wheel factory this winter, but next spring probably will make other arrangements. The purchase was made from the Standard Anti-Friction Equipment Co. of New York, which now owns the wheel factory. Alva M. Colt, who also recently resigned from the directorate of the Carriage Wheel Co., will be associated during the year with Dr. Gardiner. Mr. Colt is the inventor of the clamps, which are used extensively by builders, cabinet makers, and wagon makers. Dr. Gardiner will do business under the name of the Batavia Clamp Works.

BUFFALO—The certificate of incorporation of the Russ Rim Co. was filed in the office of the county clerk. The company is capitalized at \$10,000, divided into 100 shares of \$100 each, and is organized for the purpose of manufacturing and selling wooden rims for wheels and other specialties. The principal offices are to be located in Buffalo, and the directors for the first year, who hold all the stock, are Buffalonians. They are Francis M. Russ, George Simons and Bradley H. Phillips.

CANISTOTA—The Watson Wagon Co. have recently enlarged their storehouse on West Center street. The old storehouse, 30 x 100, has been raised up twenty-four feet, where it is supported by posts 24 feet high, and this will be the height of the first story. There will be six overhead tracks on which the wagons will be run into the storehouse and beneath which they can be piled eighteen feet deep. The business of the Watson Wagon Co. has doubled during the past year and has doubled twice since the company has been organized. The wagon has a high reputation and with a new rear dump wagon, which is nearly ready to be put out, the company will be ready to supply any kind of a demand for dumping wagons in addition.

DELHI—The entire plant of the Crawford Co. Wagon Works is to be sold at referee's sale January 7th next.

NEW ROCHELLE—The blacksmith and carriage shop of William Quinn was destroyed by fire on November 23d. The fire started in the rear of the building and it is said to be the work of an incendiary, as there was no fire in the shop for two days previous to the fire. The building was worth about \$1,600 and was only partially insured. There was about thirty carriages in the place at the time and all were burned. The total loss will probably be about \$4,000.

NEW YORK CITY—The upper half of the six story carriage factory of Burr & Co. on the northwest corner of Broadway and Fifty-fourth street and the adjoining property of the Diamond Rubber Co., were nearly destroyed by fire on December 18th. The fire started just after 11 p. m. In the rear of the Diamond Co.'s two story building at 1,717 Broadway was where the fire began, and it was some time before the firemen had any warning that there was much danger except to the horses next door, in O. S. Bailey's Rockingham stables. Just as the burning rubber in the forward part of the building was practically put out, a sheet of flame burst through the roof toward the rear and shot up in the air alongside of Burr & Co.'s carriage factory, which took fire almost instantly in the fourth floor. The entire building was drenched with water, and the total damage to the carriage factory is placed at about \$55,000 because it is not thought that the walls of the building suffered. The damage to the Diamond Rubber Co. was not stated.

Roberts Wagon Co., incorporated; capital stock, \$30,000.

MEDINA—The Empire Coach factory, of Middleport, a stock concern, was formerly owned by Mr. Card of this place and Mr. Compton of Middleport, and upon the death of the latter, went into the hands of a stock company. The corporation has purchased the old Bignell foundry site and will commence the erection of the factory buildings immediately. In fact, the shipping of the machinery and stock from Middleport has commenced already and will continue until it is all here. The management of the new concern, which will probably employ about fifty hands at the start, will be in the hands of Walter Marvin, who is at present in charge of affairs at Middleport.

SIDNEY CENTER—Edwin Hoyt has sold out his wagon repairing business to Fred Gardiner, who will continue the shop as heretofore.

STAMFORD—P. H. Mitchell has opened a carriage and sleigh repository in Champlin Block, under the charge of L. J. Champ-lin. First-class wagons and sleighs, robes, fur coats and whips, will be constantly kept on hand.

SOUTH TROY—John Mahoney, Jr., of Adams street, has disposed of his wagon factory, and entered the firm of the Turner Truck Co.

SYRACUSE—Jacob J. Unbehend of this city has been awarded a patent on a mud guard for vehicle tires, and Patrick H. Pender-gast has been granted a patent on a new bath tub.

Alexander Kocher, a wagon maker of this city, has filed a petition in bankruptcy. His liabilities are \$1,269.39, all unsecured, with \$10 assets, claimed as exempt. James S. Thorn is his attorney.

OHIO.

CANTON—The works of the Cleveland Axle Manufacturing Co. at the corner of Dueber avenue and Bridge street, were partially destroyed by fire which broke out about 11 P. M., November 22d. The loss is estimated at \$50,000 and is covered by insurance. It is the intention of the company to rebuild at once.

About 300 men were employed at the plant and will be thrown out of work temporarily. The rebuilding commenced almost immediately after the fire and the company hope to have the new building, which will be much larger than the one destroyed, ready in thirty days. Work in the portion of the factory which escaped the flames was resumed in a few days. This includes the machine shop and the shipping department. The machine shop was uninjured, but the power was cut off by damage to the engines. One of these has been repaired and will be placed in temporary operation to supply the machine shop during the period of reconstruction.

CINCINNATI—The K. C. Buggy Co. has been incorporated in \$10,000 by Lyman Hess, C. H. Davis, Henry Bentley, Jr., E. P. Eckman and C. O. Lyon.

The Buckeye Wagon Works was damaged by fire on December 4th. The loss was \$6,000; covered by insurance.

DAYTON—The Kramer Wagon factory, on Canal street, was destroyed by fire on December 3d. Loss, \$30,000.

MANSFIELD—J. B. Picking, who formerly handled buggies and wagons at 128 North Main street, has moved his effects to his property on Bowman street, where he has begun the manufacture of vehicles. Mr. Picking has nearly completed the erection of two buildings, which are 30 x 40 and 62 x 38 feet, respectively. The larger one is to be used for general wareroom and repository, while the latter will contain a blacksmith shop and the machinery which is required in the labor. Work has already partially begun and as soon as all the necessary arrangements are made the proprietor will start the plant. Mr. Picking intends to manufacture wagons and buggies of different styles and grades.

TOLEDO—Disagreements have arisen in the firm of Dosson & Co., the well known carriage manufacturers, and one of the partners wants a receiver appointed to take charge of the company's business. James B. Dosson alleges that B. E. Bullock, the other partner, for the past three months while the plaintiff's health has been such that he could not attend to the business, "has collected large sums of money due the company and has converted the same to his own use," and that he also threatens now to sell the property and withdraw the money he has invested without paying the creditors of the concern. The partnership was formed in 1898, and the present stock on hand amounts to about \$8,000.

PENNSYLVANIA.

BINGEN—A new carriage factory is expected to be erected at this place in the neighborhood of Willow Glen, which will employ a number of men and turn out 2,500 vehicles per year.

BUTLER—The office and warerooms of the Lion Spoke Works at Renfrew were burned on December 9th. The building was a large frame structure and formerly was a Free Methodist church. The accounts books of the owner, Henry W. Bagg, and a large amount of stock were burned, the loss being estimated at \$1,500. An overheated gas stove was the cause.

DANVILLE—Coleman & James, carriage workers, Church street, who recently announced that they would go out of business, have decided to continue on at the old stand.

MARCUS HOOK—Wheelwright and Blacksmith William T. Minshall has been making a number of improvements about his place of business and has enlarged his wagon building establishment to accommodate large orders.

READING—The Keystone Wagon Works, Third and Lebanon Valley tracks, is busy for this time of the season and is running full handed. The firm is doing considerable export business, having just shipped a fancy delivery wagon to Rochester, England, and has received inquiries from firms in Cape Town, South Africa.

WOODVALE—The carriage factory of Daniel Albright is being enlarged. The new factory will be of brick construction, three stories in height and 47 x 47 feet in dimensions. It will be equipped with elevators and up-to-date machinery.

RHODE ISLAND.

PAWTUCKET—George R. and John C. Perry, in the firm name of Perry Bros., carriage and harness dealers, have assigned for the benefit of their creditors. The firm has been in business here for many years, and their salesrooms were located, one on Exchange street and another at the corner of High and Exchange streets. The assignee is Frank M. Borden.

TENNESSEE.

BRISTOL—The firm of Hamilton, Bacon & Hamilton will begin the manufacture of carriages, wagons and other vehicles the first of the coming year. A building for the purpose will be erected at once. The purpose of the firm is to manufacture a high grade of vehicle.

DOVER—A company will soon be organized to erect and operate a spoke factory here. C. E. Klear is at the head of the movement.

HUNTSVILLE—A new anti-rattler for vehicles that is said to be a good thing, has been invented and patented by Thomas H. Pamphlin, a young mechanic of this city. The invention will be used on vehicles manufactured by a local concern.

LYNNVILLE—Regen Bros., whose large machine shops, carriage and buggy manufacturing establishments were burned here about a month ago, have decided to rebuild. They will begin work at once on their buildings, which will be located on the same site of the ones destroyed, and will be equally as up-to-date and commodious as the old quarters were.

McKENZIE—Several men from Pinkneyville, Ill., are here and are stopping at the McDade Hotel, who propose to start a factory at Gwin's Switch, four miles south of here on the L. & N. Railroad, and manufacture all the materials used in making buggies. They will use only hickory timber. The style of the firm will be J. H. Smith & Co., and they will employ about fifteen hands in the factory, besides those employed in getting the timber from the woods. They will bring about \$1,500 worth of machinery with them and begin at an early date.

NASHVILLE—The foundation is being put in for the new carriage factory in this city of Franklin Bros., late of Chicago. It will be an extensive concern and the structure will be completed and the machinery set up by early spring. They propose to turn out a high grade of work.

UNION CITY—H. A. Reaves, a vehicle dealer, failed for \$4,000.
TEXAS.

BRISTOL—Beveridge & Taylor, who came here from Harriman, Tenn., have their new spoke and hub factory about ready to be put in operation. This plant will give employment to thirty men at the outset, and the purpose is to gradually increase the number of employees.

HOUSTON—James McAughan & Co., the well known wholesale and retail dealers in wagons, buggies, phaetons, surreys, harness, machinery, are widening the scope of their business in a manner calculated to soon place the house in the front rank of wholesale houses in this section. The company is comparatively a new concern, and is already numbered among the leading business establishments of the city.

VIRGINIA.

MARION—The addition to Look & Lincoln's wagon factory is nearing completion and they will have considerably more than a quarter of an acre of added space under a slate roof. The old building, slightly altered, will be chiefly used for storage room.

MILWAUKEE—Fire, said to have started in the foundry room, damaged the two story brick building occupied by the Stehling-Bloomer Carriage Works, 551 Tenth street, to the extent of \$700.

WASHINGTON.

SEATTLE—The McDonald Vehicle Company is to be succeeded by the McDonald-Bowen Company. Articles of incorporation were filed recently with a capital of \$50,000. The first trustees are Phillip J. McDonald, M. D. Leehy, E. D. McDonald, Stephen P. Bowen and C. E. McAvoy. The only change made is the increase of capital stock in order to enlarge its business and the addition to the company of Mr. Bowen and M. D. Leehy.

WEST VIRGINIA.

WHEELING—W. F. Bayha, carriage manufacturer, has filed a bankruptcy petition, with liabilities of \$6,000 and assets \$5,525.

Wants.

Help and situation wanted advertisements, one cent a word; all other advertisements in this department, 5 cents a word. Initials and figures count as words. Minimum price, 30 cents for each advertisement.

Wanted—A situation by a first class carriage painter, sober and industrious. Stripper, finisher, willing to take charge. Address "WM. K.," Box A94, care THE HUB.

Wanted—Position by a practical carriage painter as foreman, or will contract. Eighteen years' experience, age thirty-two. Address "PAINTER," Box A91, care THE HUB.

Wanted—A situation by competent foreman painter. Automobile or carriage shop. Strictly temperate and of good executive ability. Address "WM. K.," Box A95 care THE HUB.

SITUATIONS WANTED.

Wanted—Situation by trimmer and painter. Address Leo Herman, 2712 Mill street, St. Louis, Mo.

Wanted—Situation as salesman, selling carriages or carriage goods. Fifteen years' factory experience. Best of references. W. O. Wesley, Freeport, Ill.

Wanted—A situation as superintendent by a thoroughly posted and up-to-date man; capable of taking charge of a large carriage factory; best references. W. C. M., 746 W. Sixth street, Cincinnati, Ohio.

Salesman, now and for many years thoroughly acquainted with the carriage hardware, harness and livery trade throughout New York, Pennsylvania, New Jersey and the East, wants position to travel. Opportunity with a manufacturer of carriages and buggies preferred. Address "F. E. B.," Box A87, care THE HUB.

Mr. D. E. Allen, of Bird's Eye, Ind., who was formerly prominently identified with the carriage wheel interests of the country and more recently engaged in the manufacture of wheel material has sold his business, on account of the scarcity of raw material in that section, and now seeks a new opening in the same or a new line of business. Any one needing the services of one of Mr. Allen's ability and large business experience would do well to communicate with him at Bird's Eye.

A good sober, reliable carriage painter wishes a steady situation. Is not particular to what part of the country he goes. Is a man who has had twenty-five years' experience in the paint shop. Is a good finisher and good stripper, used to all kinds of light and heavy work. Does

not want any but permanent situation. Address Silas S. Marshall, 428 Main street, Poughkeepsie, N. Y.

Wanted—A situation as superintendent or assistant by first-class all around carriage man and practical draftsman. Address Box "A82," care THE HUB.

A first class trimmer wishes employment. Have been head trimmer in a large factory for the past fifteen years. Address "J. D.," Box "A83," care THE HUB.

Wanted—Position as foreman in a spoke factory. Years of experience in making wagon and buggy spokes. Reference given. Address "SPOKES," Box A77, care THE HUB.

A retired carriage maker, good address, steady habits, active, inventive and intelligent—can speak German—will accept position as salesman, or handy all-around man, or manager in some good moderate sized carriage factory. Best reference furnished. Would invest a little. Address "HANDY MAN," Box A80, care THE HUB.

An experienced and successful carriage salesman, who has a wide acquaintance among Eastern dealers, and who has just severed his connection with a prominent New York State manufacturer, would like to communicate with a wholesale carriage builder who wishes to extend trade in the Eastern territory. Best references. Write at once to "EXPERIENCED," Box A81, care THE HUB.

Manufacturers of carriages, wagons, harness, or the accessory lines, who are in need of salesmen, and who want to engage high class men able to sell goods, should write at once to L. H. Kronfeld, secretary of the Carriage, Harness and Accessory Traveling Salesmen's Association, Mt. Vernon, N. Y.

HELP WANTED.

Wanted—Two good body makers at once. Must be good on phaeton and piano bodies. Steady work. Apply to FOUTS & HUNTER CARRIAGE MFG. CO., Terre Haute, Ind.

Wanted—Two first class blacksmiths. Steady employment to the right parties. Wages \$3.00 to \$3.50 per day. Apply to A. MEISTER & SONS' CO., Sacramento, Cal., stating experience, etc.

Wanted—A first class carriage painter and stripper to take charge of a shop either piece or day work; also a blacksmith to work on light new work and jobbing. None but first class men with good references need apply. Address "G.," Box A93, care THE HUB.

Wanted—Superintendent for large carriage and automobile body factory turning out high grade work. Good references required, and applicant must be thoroughly practical and good systematizer. Address "F. CO.," Box 96, care THE HUB.

Wanted—Painter, to take charge of shop, building light grade work. He must be a thorough mechanic, up to date, and a good finisher, stripper and letterer. A man who can handle men to advantage. Young man preferred. Steady job. Address McMurray Sulky Co., Marion, O.

Wanted—Experienced foreman for paint department of buggy factory, capacity eight to ten thousand jobs. Man thirty to forty years preferred. Must be thoroughly familiar with painting, and capable of handling men. References required. Address "R. F.," Box A88, care THE HUB.

Wanted—An experienced body finisher. Address "R. F.," Box A89, care THE HUB.

Carriage mechanics, blacksmiths, painters, trimmers, ware-room craters and wood workers wanted. Cincinnati, the carriage manufacturing center of the United States, needs more carriage workers for its increasing trade. Twenty-nine shops built 150,000 vehicles this year. Steady employment. Good wages; good schools; rents and living cheap. Address with reference, U. S. VEHICLE MANUFACTURERS' ASSOCIATION, Box 103, Station F, Cincinnati, O.

Wanted—Hustlers to secure new subscribers for THE HUB. A good chance to make money easily. Subscription price, \$2.00 a year. Liberal commission paid. Address Subscription Department, THE HUB, 24-26 Murray street, New York.

PATENTS.

PATENTS.—H. W. T. Jenner, patent attorney and mechanical expert, 607 F street, Washington, D. C. Established 1883. I make an examination free of charge, and report if a patent can be had and exactly how much it will cost. Send for circular.

FOR SALE.

For sale at a bargain, a first class carriage factory up to date in every respect. Controls the leading trade in a city of 50,000 inhabitants. Can furnish the very best of reference. Will sell with or without building. Reason for selling, other business requires attention out of the city. Address "G. A.," Box A92, care THE HUB.

Solid rubber tire patent. Entirely new principle. Cannot get off the rim. Economical. Experienced tire men say it is the best they have ever seen. For particulars address "RUBBER TIRE," care of THE HUB.

FOR RENT.

Carriage factory, fine location, good trade. Only one other shop in the city of 40,000 inhabitants. Rent reasonable. Address Irvin Tennant, Springfield, O.

BUSINESS OPPORTUNITIES.

Wanted—a reliable party to promote or manufacture the most valuable anti-friction bearing of the age, that will revolutionize the automobile and vehicle industry and do three times more than any bearing in existence to-day. There are millions in this invention that will bear the strictest investigation. Can be seen in operation at 1233 Lexington avenue, New York. Sweeney.

COLOR SECRETS.

No. 48.—The New Year Pledge.

Good promises are in order, this month. We give you ours. But we are not turning over a new leaf, in order to give you a fresh promise. The former page is neither torn nor blurred. In fact, we simply show you the pledge we made, not last year simply, but when we began to make Colors. The book is clean, from the very start. It is not an extravagant promise, but a most important one; and we can keep it. We always have kept it. You have found it as safe as a United States note. Bring it back to us, any time, and we will redeem it at par. Nay: we'll give you a premium on it. We'll do better than we promise.

Here is the pledge: Any Color, or any Varnish, that bears the Murphy name, shall be to you an absolute reliability. You may accept the name, without hesitation, as a guarantee of genuineness in material and make; as the surety of standard value and exceptional worth.

We do not pretend to be the only Color-makers; that you never can get anything else as fine as Murphy's; that excellence and possibility shall die with us: but we do pledge what is modest and safe—that Murphy's Colors are always fine—that their high quality is UNIFORM—that you will take no chances on THEM. They are the real thing, EVERY TIME. We make no special batches for samples. Our samples are taken, indiscriminately, from any batch. We label nothing until it is a sample. We have this pledge constantly in view, and this reputation forever at stake. You need not walk, you may sleep, o' nights.

MURPHY VARNISH CO.

Please mention "The Hub" when you write.

**SUPERIOR
STRENGTH**

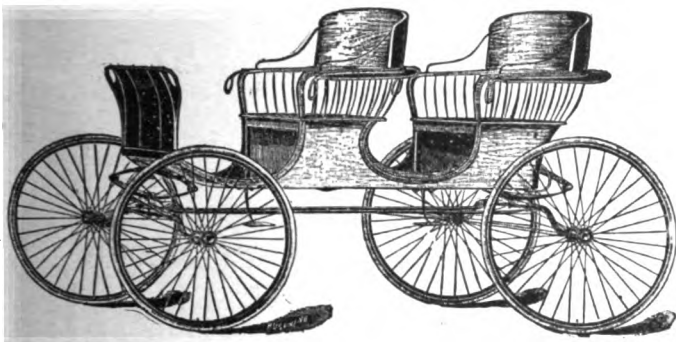
WHEELS

1855 1901

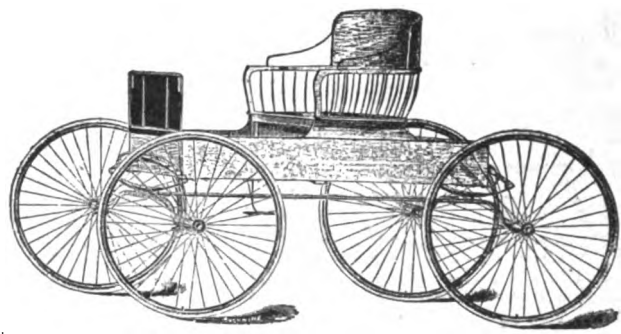
PHINEAS JONES & CO
NEWARK, NEW JERSEY.

Please mention "The Hub" when you write.

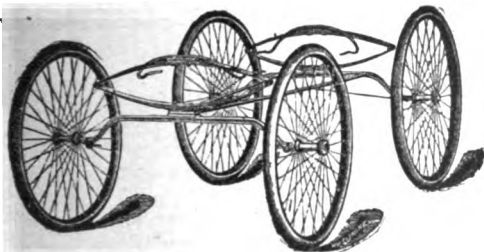
FITCH GEARS



FITCH PNEUMATIC SURRY (in-the-White).



FITCH PNEUMATIC ROAD WAGON (in-the-White)



FITCH PNEUMATIC ROAD WAGON GEAR.

PRICES TO SUIT
THE TIMES.
Send for our latest
catalogue, with
full line of gears,
wagons in-the-
white and carriage
specialties illustra-
ted. *at at at at*



FITCH IMPROVED BIKE AND PNEUMATIC GEAR.

We make Bike Gears and Wagons in-the-White, with Wood Hub Wheels and Solid Rubber Tires.

SHOWING ALL STYLES OF PNEUMATIC AND BIKE WORK.

FITCH GEAR CO., Rome, N. Y.

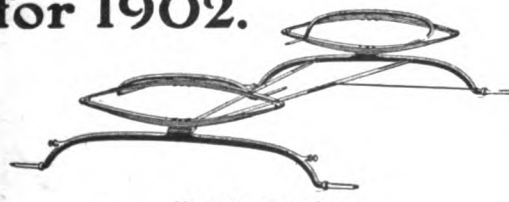
SCHUBERT'S WAGONS IN-THE-WHITE.

The Best Sellers
for 1902.

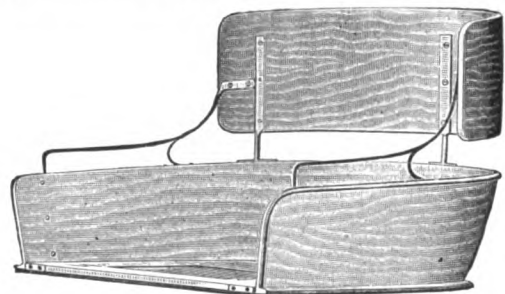
Very Latest Styles

Send for our...
NEW CATALOGUE.

We also build
Automobile Bodies



No. 703. Bike Gear.



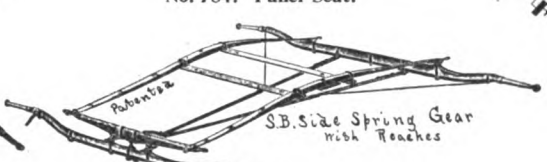
No. 784. Panel Seat.



Patented.



No. 19 Premier



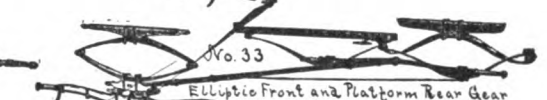
Patented.



No. 6B
Three Spring Gear
for Turn Under Front Wheels



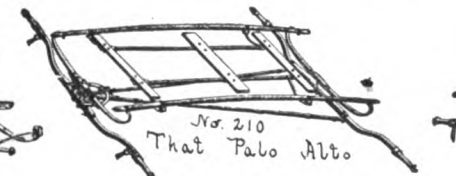
No. 21
Eclipse Gear



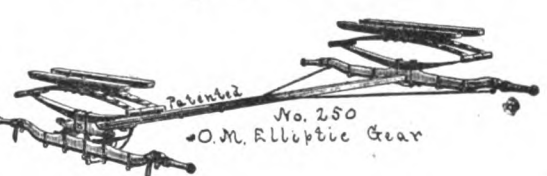
No. 33
Elliptic Front and Platform Rear Gear



No. 30
Duplex Front and
Platform Rear Gear



No. 210
That Palo Alto



Patented
No. 250
O.M. Elliptic Gear

SCHUBERT BROS. GEAR CO., - - Oneida, N. Y., U. S. A.

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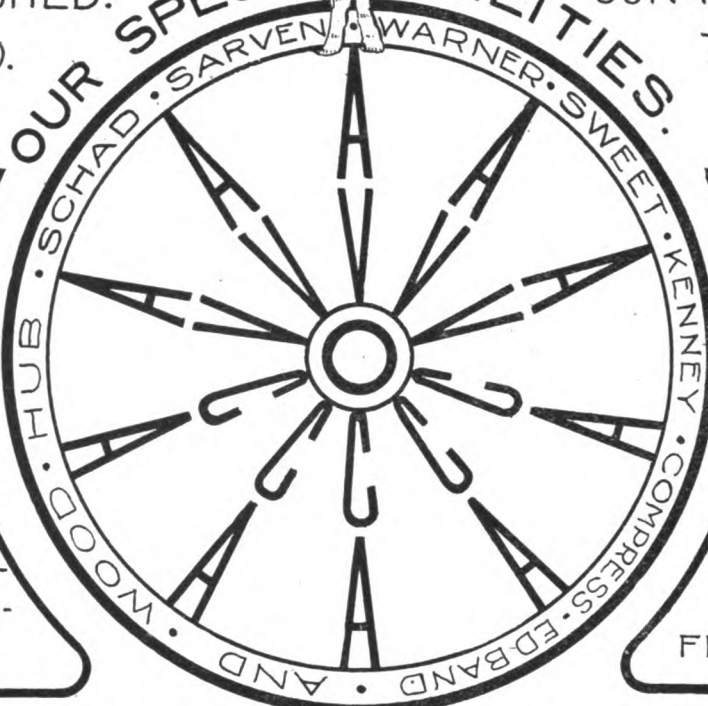
ESTABLISHED.

1890.

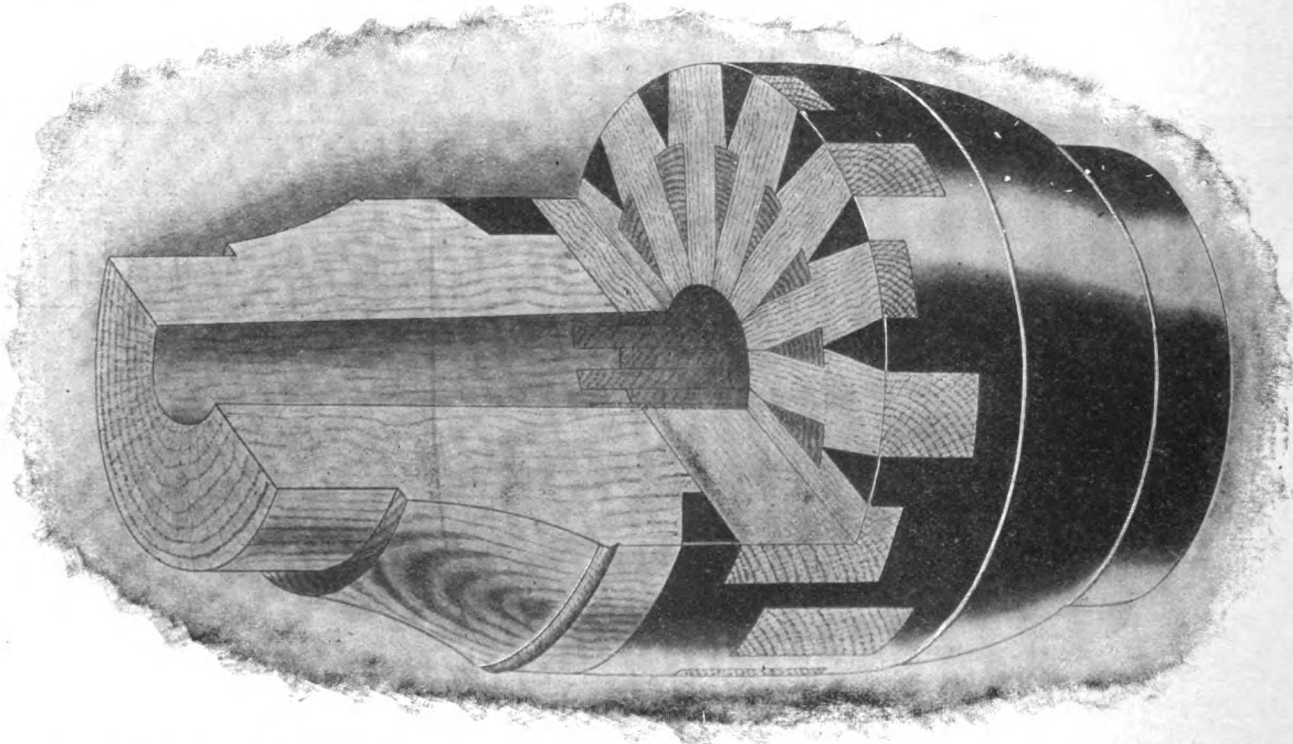
OUR SPECIALTIES.

OUR WHEELS ARE
THE BEST.

WE HAVE
ONE OF THE
MOST COMPLETE
PLANTS FOR
PUTTING ON
STEEL TIRES
IN THE UNIT-
ED STATES.
WE ALSO AP-
PLY SOLID RUB-
BER AND PNEU-
MATIC TIRES.



WE SELL
WHEELS COM-
PLETE.
WE USE THE
KELLY-SPRING-
FIELD SOLID
RUBBER.
NO EXTRA
CHARGE FOR
WOODBURN
FLANGE.

**OUR LEADER IS THE SCHAD HUB**

IT IS THE HANDSOMEST AND STRONGEST HUB ON THE MARKET.

THE SPOKES CANNOT GET LOOSE IN THE HUB.


AVOCA WHEEL CO.

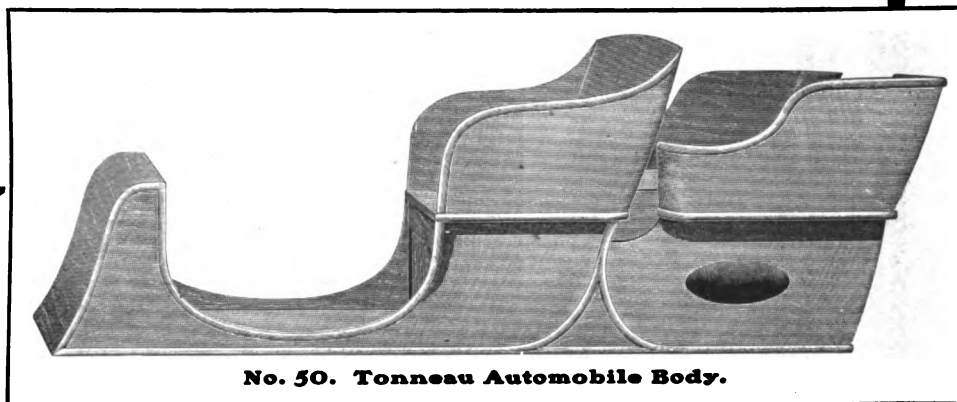
AVOCA, N.Y. U.S.A.

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CARRIAGE AND AUTOMOBILE BODIES BIKES IN WHITE.

Highest Art in Style and at Bottom Prices.

*Automobile
Bodies* 
A Specialty.



No. 50. Tonneau Automobile Body.

The Frantz Body Mfg. Co.,

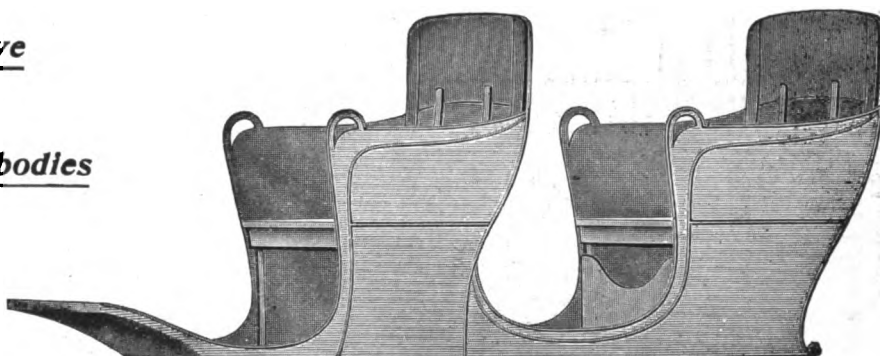
AKRON, OHIO.

BODIES! BODIES! BODIES!

Many new and attractive
designs for 1900.

A choice lot of stylish bodies
always in stock.

REQUEST WILL BRING
CATALOGUE AND PRICES.

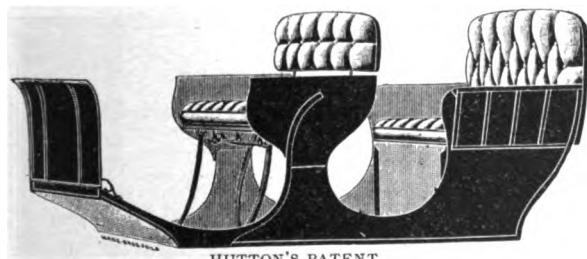


No. 153. SURREY. Price, \$10.00.

CINCINNATI PANEL CO., Cincinnati, Ohio.

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saw their advertisements in
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HUTTON'S PATENT.

CHILDS SEAT IRONS and JUMP SEAT IRONS
For Buggies, Surreys, Sleighs, Concord and Spindle Wagons, etc.

FOLDING DASH FEET, LAZY-BACK IRONS, etc. Made to suit any size
and style of vehicle.

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G. H. HUTTON & CO., Baltimore, Md.

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CHICAGO The Industrial Center.

Manufacturers located in Chicago are dependent upon no one railroad's caprice as to rates for hauling raw material in and finished product out.

YOUR PROFITS

would be much greater if your factory was located in Chicago where transportation charges would not absorb so great a percentage. Pamphlet, map and full particulars of substantial inducements offered to manufacturers, free on request.

Records of the building department of Chicago show a total of over \$19,000,000 in 1900. The capital stock of manufacturing corporations is not taxable.

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Between East and West.
New York, Buffalo, Niagara Falls,
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Best Route to

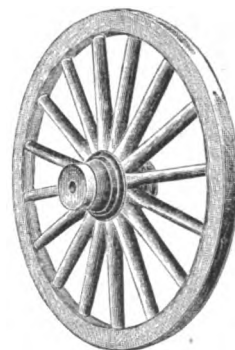
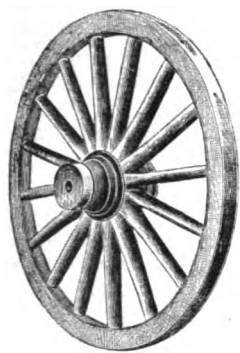
California
Colorado
Texas

Via

St. Louis

WARREN J. LYNCH, W. P. DEPPE,
Gen'l Pass. & Tkt. Agt. Asst. Gen'l P. & T. A.
CINCINNATI, O

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...THE FINEST...

WHEELS

IN AMERICA
are made by

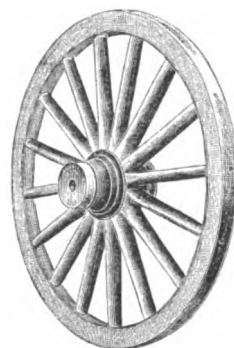
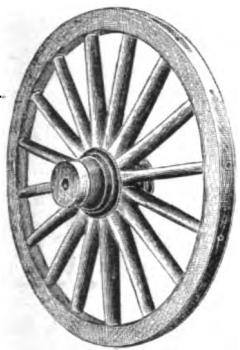
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MANUFACTURERS OF

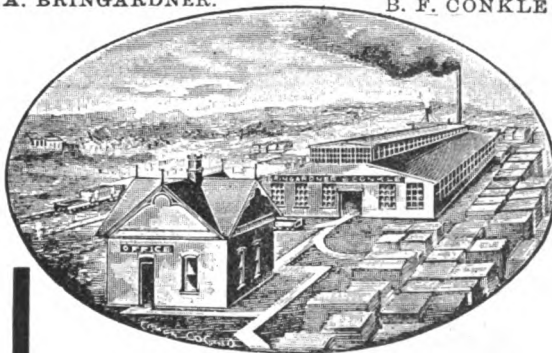
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Steel and Rubber Tiring a Specialty.

ESTABLISHED 1879
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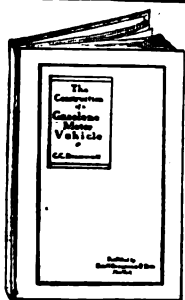
Manufacturers of

Carriage Woodwork,
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GREATER CAPACITY THAN ANY OTHER
CONCERN OF THE KIND IN THE WORLD

Are You Keeping Up with the Procession?



Are you keeping posted on the development of the automobile?

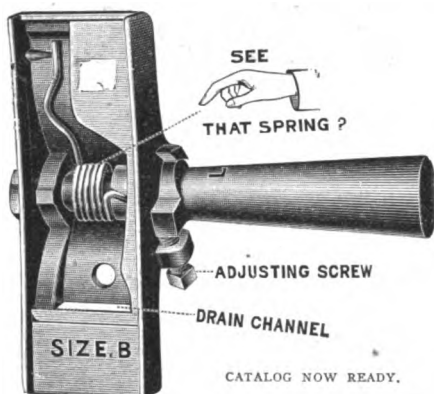
A book upon the subject has just been published. It is called "The Construction of a Gasolene Motor Vehicle" and is an interesting and practical work. The book is by Clarence C.

Bramwell and is the result of six years of study, observation and experimental work both in this country and abroad.

It is profusely illustrated with mechanically correct drawings, working from which any mechanic or amateur builder can construct an automobile.

"The Construction of a Gasolene Motor Vehicle" is alike valuable to manufacturer, dealer or owner of an auto. Reading it may save many expensive mistakes otherwise likely to occur.

The Price is \$2, prepaid
Address THE HUB, 24 Murray St., N.Y.

"SPRING" BRAKE-BLOCKS

For Steel or Rubber Tire.

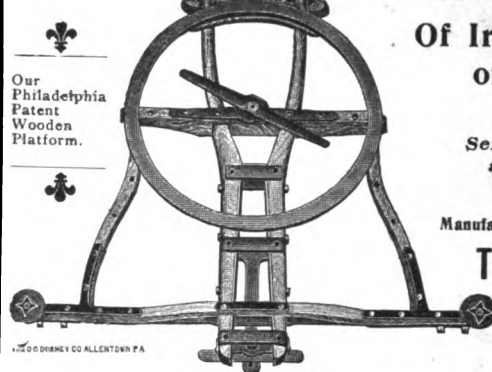
Special Wear Shoes for every requirement...

MORGAN POTTER

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CATALOG NOW READY.

BEST PLATFORMS AND COMPLETE WAGON GEARS.

Of Iron, Steel or Wood.

Send for Catalogue and Price List.

Manufactured by

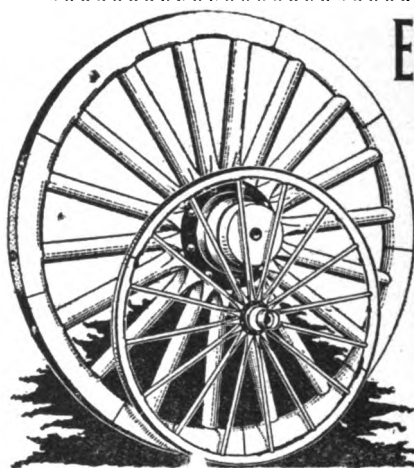
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ALLENTOWN,
PA., U. S. A.

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WHEEL MATERIAL AND BENT WOOD WORK

The Wheel & Wood Bending Co.,

Send for Catalogue. **BRIDGEPORT, CONN.**



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Manufacturers of ...

Light and Heavy

WHEELS

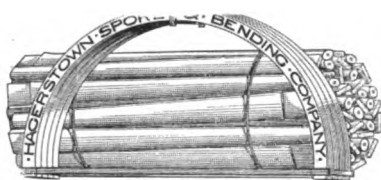
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The Hagerstown Spoke and Bending Co. Hagerstown, Maryland.
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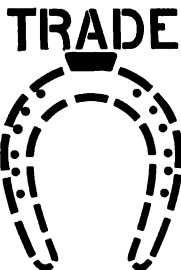
Spokes and Rims **TRADE**



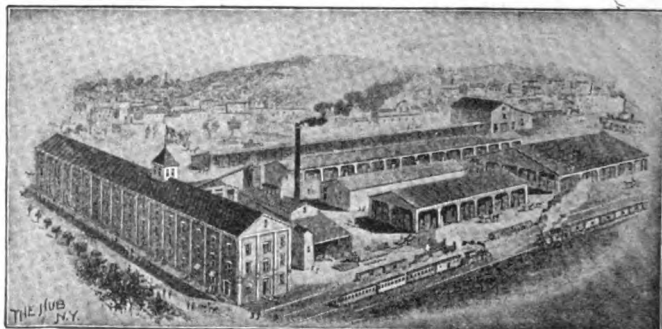
EXPORTERS OF

Hardwood, Oak, Hickory and Walnut Logs and Lumber.

The celebrated "Horseshoe" brand of which we export largely. All foreign and American patterns of Spokes.



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Correspondence Solicited.

Cable Address, "SEBOLD."

No more "open" corners.
Will not rattle.

Are very durable—in fact, practically **indestructible**.

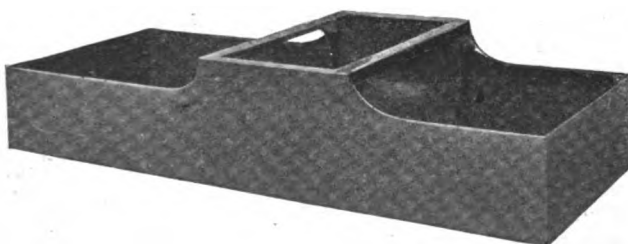
We obtain a beautiful piano polish finish by baking the enamel on.
Will not stain.

**SEE OUR EXHIBIT,
NEW YORK SHOW,
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WRITE US. _____

THIS IS THE METAL AGE

And this is the **FUTURE** body for vehicles.



(PATENTED—PATENTS PENDING.)

The Eastman Metallic Body Co.,

Dept. B, CLEVELAND, OHIO.

We have already booked orders from some of the largest manufacturers.

The finish is far more durable than on wood.

The moment you equip the Eastman Body, just that moment you enhance the value of your product.

**MADE ENTIRELY OF METAL,
LIGHT AND STRONG.**

Please mention "The Hub" when you write.

ANDREW KIMBLE, GEAR WOODS

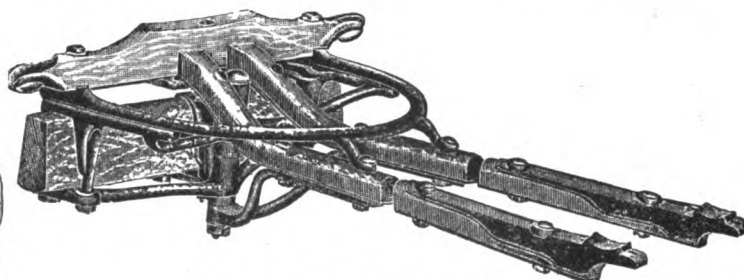
YOUNG TOUGH BUTTS



TRADE MARK

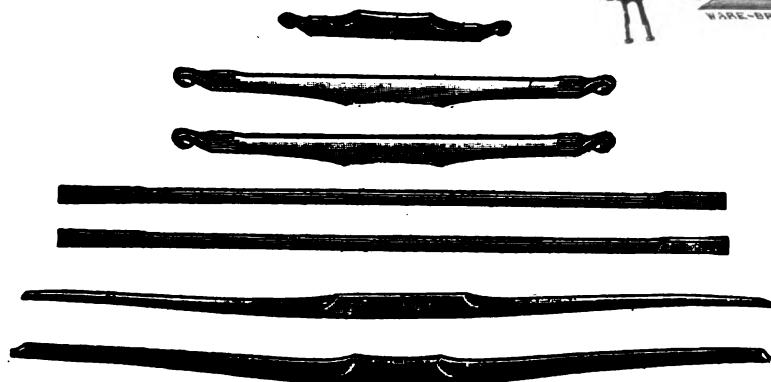
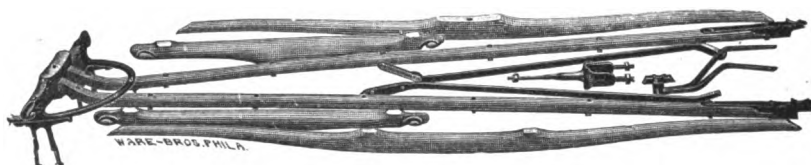
ALL STYLES OF GEAR
WOODS MADE TO
ANY PATTERN

and Patent Bent Reach Rear
King Bolt Malleable Wheel....



SPECIAL NOTICE

The attention of the trade is called to my letters patent No. 654,460, issued July 24, 1900, for Combination of Rear King Bolt Bent Reach Fifth Wheel, as we shall hold all infringers liable to the full extent of the law whether manufacturers, seller or users.



Gear Woods Ironed with
Derby, Brewster and Malle-
able Wheel. Single and
Double Reach Phaeton.
Straight Sill and Cut-Under
Surreys.

ANDREW KIMBLE,
ZANESVILLE, OHIO



CRANE & MACMAHON,

No. 18 SOUTH STREET, NEW YORK.

FACTORIES:

VIRGINIA and NORTH CAROLINA WHEEL CO., ST. MARY'S SPOKE WORKS,
and WAPAKONETA BENDING CO.

WHEELS SARVEN, WARNER,

and WOOD HUBS, Heavy and Light. Heavy Wheels for Business Wagons a Specialty.

MANUFACTURERS OF ★ BRANDS OF
CARRIAGE AND WAGON WOOD STOCK,
RIMS, SPOKES, HUBS, ETC.,
AND HARDWOOD LUMBER.

SEND FOR CATALOGUE AND PRICE LIST.

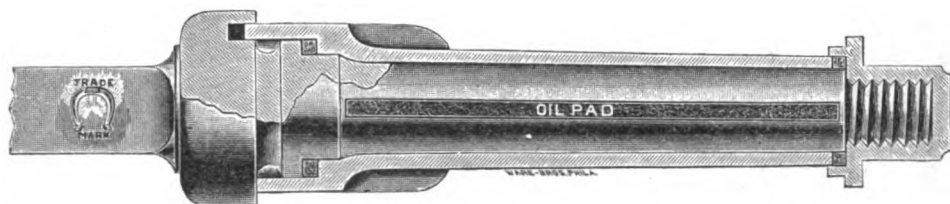
The Hickory Nut Brand is made of Second
Growth Hickory Rims, Spokes and Elm Hubs.

The Acorn Brand is made of Second Growth
Oak Spokes, Bent Oak Rims or Sawn Felloes
Thoroughly Seasoned Stock.

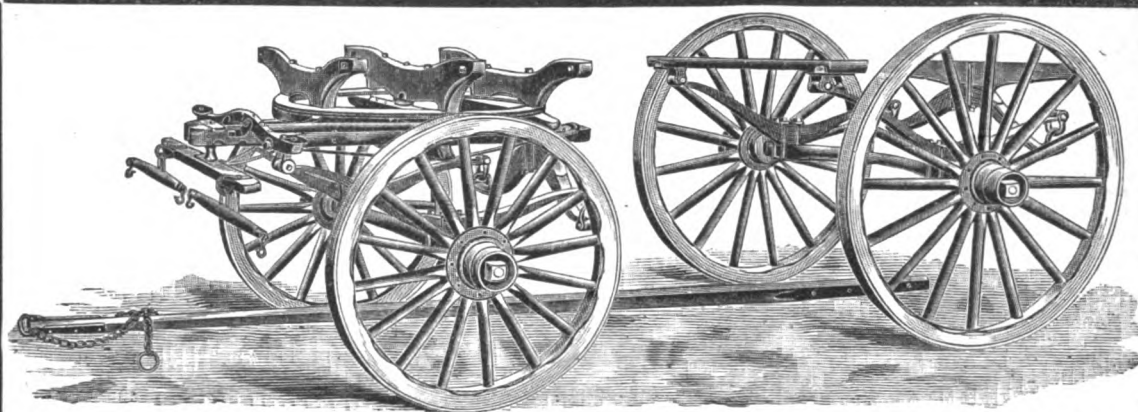
Please mention "The Hub" when you write.

Manufacturers of **"Collinge Collar"** and other styles of Axles for
"Long Distance" use.

Also Manufacturers of the best **"Concord Express Axles."**



SPEARS AXLE CO., WHEELING, W. VA.,
U. S. A.



Complete Gears as shown above, ready to receive body, for light and heavy work, can be furnished promptly. In ordering give full specifications, or such description as will enable us to make up specifications. Dealers in wagon materials will quote prices on our gears.

**SELLE
GEARS**
THE SELLE
GEAR CO.

AKRON, O.

"THE FAMOUS PORTER PATENT DUST PROOF AXLE."

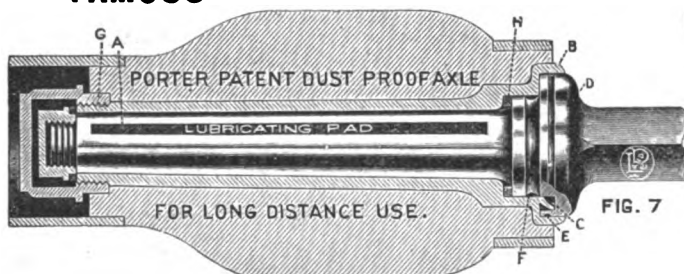
FOR LONG DISTANCE USE

The only "2,500 Mile" Standard Axle in existence.

By actual test this Axle has run 2,500 miles with one oiling, and 1,500 miles with one oiling without the Lubricating Pad.

Porter Patent Ball Bearing Axle.

This axle is fitted with the Famous Porter Patent Dust Proof Collar and V-shaped extension, making it absolutely dust and water-proof. 7,000 sets in use. Never had a ball crush. Never had a call for repairs. Write for particulars. Prices now within reach of all.



Manufactured by **LEE & PORTER,** DOWAGIAC and BUCHANAN, MICHIGAN.

Hartford Axle Company.

Good Axles are the result of experience, careful attention to smallest details, and the constant desire to improve. The continual upbuilding of our reputation has been guided by these principles, and a trial of our work will convince you of the excellence of our product. We make all styles, including the Brewer.

- - **Dunkirk, N. Y.**

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**High
Grade
Wheels.**

Zwick & Greenwald Wheel Co.
DAYTON, OHIO.

Manufacturers of

**Vehicle
...Wheels**
of Every Description.



Trade-Mark.

WHEELS

**LIGHT
AND
HEAVY.**

... Sarven, Compressed and Wood Hub ...

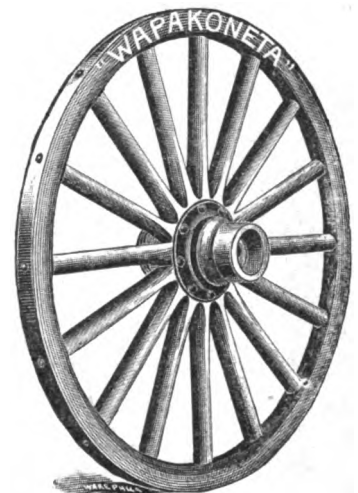
Capacity 250 Sets Per Day.



Highest Award

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FOR SUPERIORITY IN CONSTRUCTION, WORKMANSHIP AND MATERIAL.



THE WAPAKONETA WHEEL COMPANY,
WAPAKONETA, OHIO.

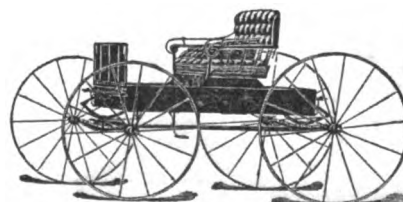
**LEADERS IN
SWIVEL NECK YOKES**



MANUFACTURED BY

C. E. SOVEREIGN,
ROCKFORD, ILL.

Small Cuts For Advertisements



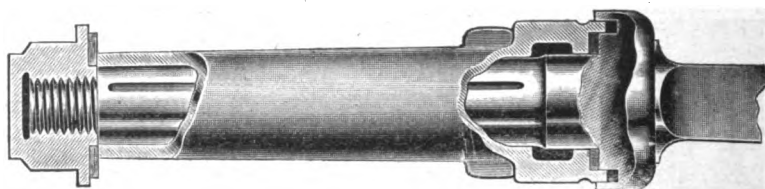
We carry a special line of new cuts of up-to-date vehicles, and will send you sample proofs if you will let us know what you want. Price 75c. postage paid.

Trade News Publishing Co., NEW YORK.

Please mention "The Hub" when you write.

Collinge Collar Axle

*An Axle
of which all
have heard,
many used
but few seen
in print.*



As proportioned by us we feel it is at the *head of its class*, and therefore present this cut, hoping it will induce you to give our axles a trial.

To it, when desired, we can at a small extra cost apply the Brewer Longitudinal Axle Lubricator, which is the simplest device known for *continual lubrication* and has the *added merits* of not weakening either arm or box by the removal of metal at vital points, and *not allowing* oil to leak out.

Dalzell Axle Company

SOUTH EGREMONT, MASS.

THE OLD
RELIABLE

THE
J. A. & D. P.
COOPER
CO.

We are furnishing our Ironed Up Sets better and at lower prices than you can assemble the parts and put them up yourself.

We have greatly increased our factory facilities and are giving prompt service.

We are recognized leaders and the only practical carriage makers in the gearwood trade.

We furnish all styles of gearwoods made to order.

THE
J. A. & D. P. COOPER CO.
STRUTHERS, OHIO

Please mention "The Hub" when you write.

ARMSTRONG



SINGLE
LEAF
SPRING

== FOR SWELL TURNOUTS ==

"THE ARMSTRONG"

Thousands in Use all Over the World

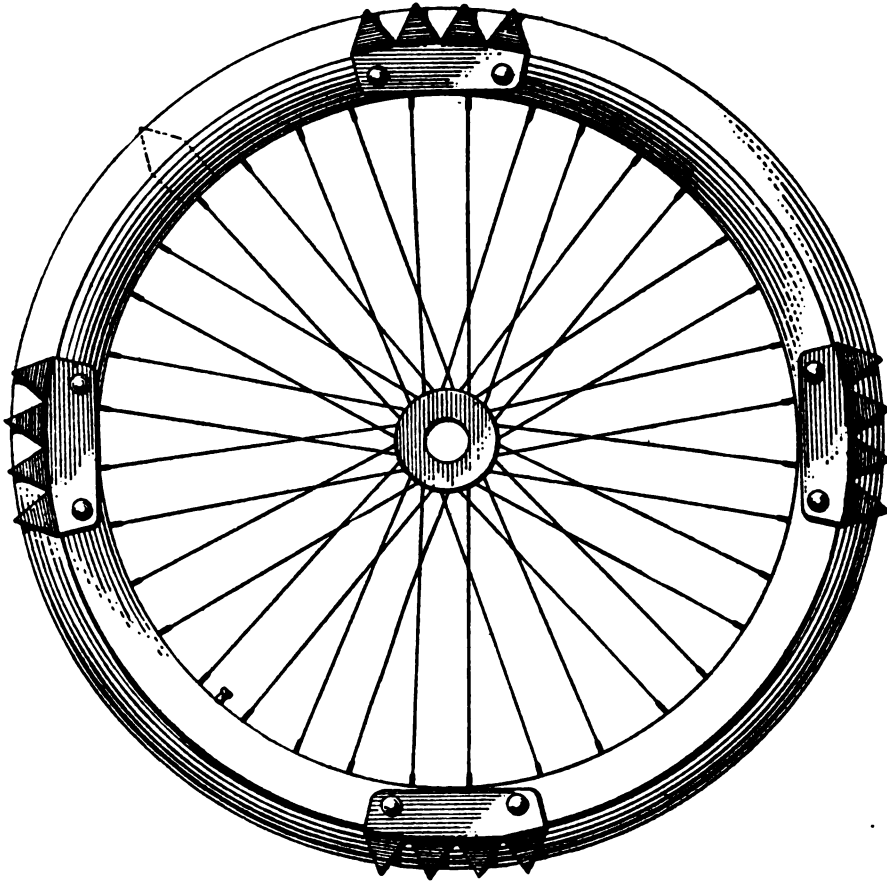
*Our Two-Leaf Spring for Buggies, have you tried them?
If not, write to us and let us tell you why it is to your
interest to use them. Oblige us by mentioning this
paper when you write. : : : : : : :*

J. B. ARMSTRONG MFG. CO.

FLINT, MICHIGAN

ALL KINDS OF CARRIAGE AND WAGON SPRINGS

Please mention "The Hub" when you write.



See
Those
Teeth?

The Gripping Members on the Rim of the Wheel
Prevent Slipping on Mud, Ice or Snow

*They are easily and quickly removed when summer comes.
They will save the price of a tire in preventing it from
tearing loose.*

They can run on ice on a 60 per cent. grade.

*They are the ONLY device that SUCCESSFULLY SOLVES
THE SLIPPING PROBLEM.*

CAULFIELD'S
PATENT GRIP WHEEL
FOR AUTOMOBILES

U. S. A. Patent No. 670,664

Canadian Patent No. 71,089

Particulars on
Application to

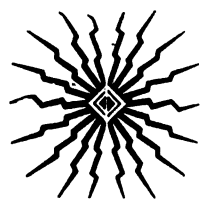
JOHN CAULFIELD,

74 Nelson Street

BROOKLYN, N. Y.

Please mention "The Hub" when you write.

COMPARE



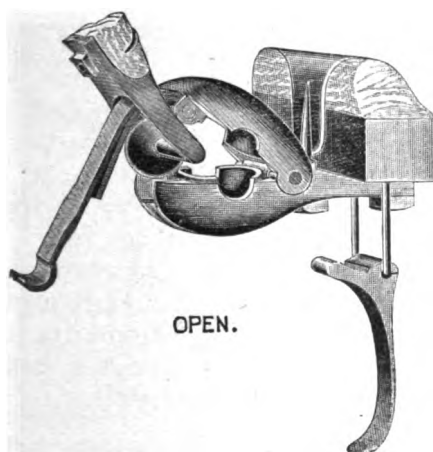
The Mulholland Shaft Coupler..

with any other Coupler on the market, and we are confident you will concede its superiority.

It is correct in principle, and has no equal for strength, workmanship and neatness in appearance.

We ask you to make the comparison and judge for yourself.

The Mulholland Coupler,



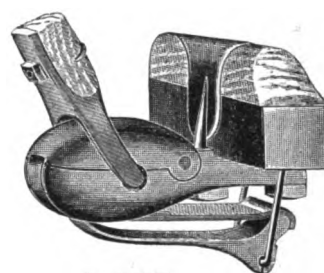
has the following features which are possessed by no other SHAFT COUPLER.

IT IS DIRT PROOF.

The Jaws Interlock.

The Leather Bushings are Permanently Cemented in the Jaws.

The Link is made of Steel Wire, the Ends being Electrically Welded.

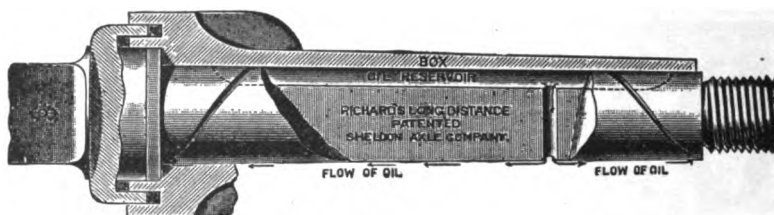


Write us, and we will tell you other reasons why you should use the Mulholland Shaft Coupler.

Mulholland Spring Co.,

DUNKIRK, N. Y.

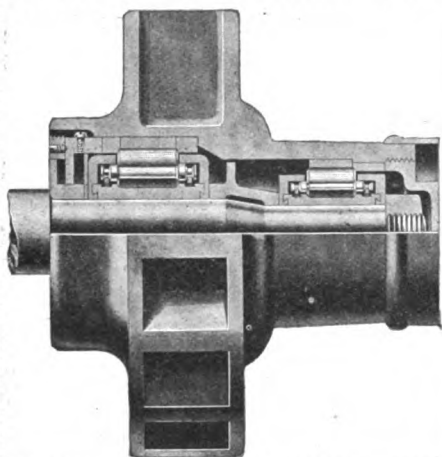
SHELDON AXLE CO.



They are now prepared to furnish **BIKE WAGON AXLES** in any quantity, promptly, ready for welding to fifth wheels and centres. . . . The **RICHARDS "LONG DISTANCE"** (the only long distance axle made) still leads. There are many cheap imitations on the market, but only one real thing. . . .

SHELDON AXLE CO., Wilkes-Barre, Pa.

Not only **CLAIM** to make the best Axles and Springs made in the world, in each of their grades, but **DO SO.**



American Roller Bearing Co.,

OFFICES AND FACTORY:

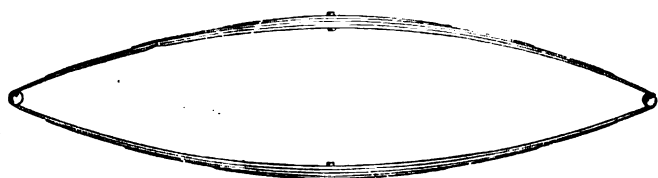
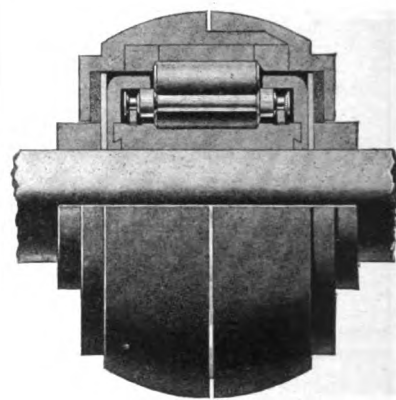
32 Binford Street, Boston, Mass.

Hubs, Wheels and Axles for all kinds of Carriage, Automobile, Wagon and Heavy Truck work.

Also single bearings for Shafting, Motors, Sheaves, Car Bearings, Automobile, Driving Axles, etc.

EUROPEAN BRANCH:
17 Soho Square,
LONDON, ENGLAND.

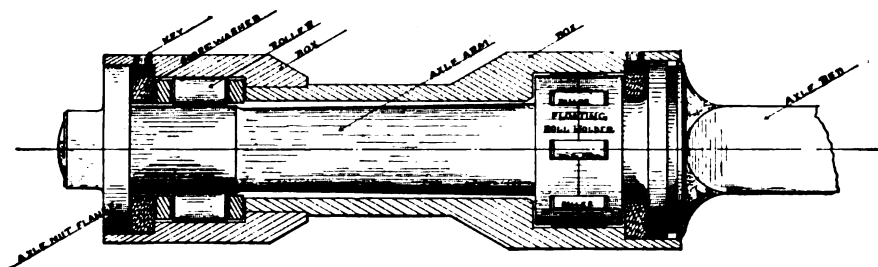
WESTERN DEPT.,
H. Franklin Peterson,
164 Lake Street,
CHICAGO, - - - ILL.



ill well into 1902—prices are well maintained. To avoid repetition of your experience buy your prings of the **Tuthill Spring Co., Chicago**. This Company has not oversold its capacity—it knows how many springs it can make and reserves its capacity for its customers. It makes a good quality of springs—uses best make of steel. It makes deliveries on through trains, shipments leaving the day delivered at depot. It charges market price—no more, no less. It executes orders promptly, gives courteous treatment and fair dealing. It's a house you'll like to deal with.

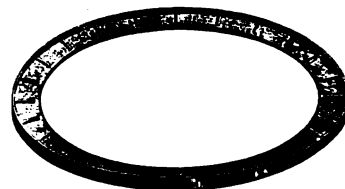
TUTHILL SPRING COMPANY, 315 Clinton St., Chicago, Ill.

For Truck, Wagon and Carriage Manufacturers



MORSE ROLLER BEARING AXLE

Immense
Reduction
in Draft



Moss Roller Bearing Fifth Wheel

The Roller is to the Axle what the Wheel is to the Wagon

BANTAM MFG. CO.

23 Warren Street, New York

BANTAM, CONN.

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OF INTEREST TO Manufacturers

Write for a copy of pamphlet
just issued by the

Illinois Central R. R. COMPANY

giving reliable information
concerning nearly 200 desir-
able locations for industries
and entitled

INDUSTRIAL SITES IN TEN STATES

Address **GEORGE C. POWER**,
Industrial Commissioner Illinois Central Railroad,
Room 506 Central Station, CHICAGO, ILL.

BUGGY BOOT SPRINGS.

Better and Cheaper than Rubber.
The Largest Builders Use Them.

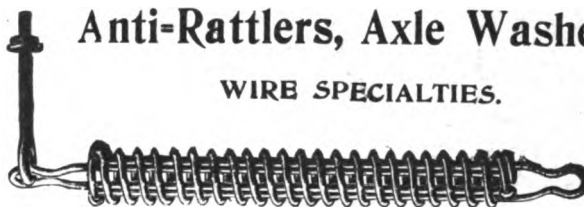
Get Samples and Prices.

RAYMOND MFG. CO., LMT. CORRY, PA.

MANUFACTURERS OF

Brake and Pole Springs,
Anti-Rattlers, Axle Washers,

WIRE SPECIALTIES.



IMPROVED POLE SPRING.

We Will Pay You Cash to Answer this Advertisement

Cut this out. Send it to us with your address.
We will send you free of charge, our
1902 500 Page Catalog
Which contains net wholesale prices, on everything
necessary for ...

Wagons & Buggies
Finished Vehicles
Harness
Blacksmith Tools
Wagon & Carriage
Hardware
Paints & Varnish

We make wheels, we put tires on them, we weld
axles, we set the boxes in the wheels. If you are
a new customer we will send you with the catalog
a coupon worth

\$1.00 IN CASH

Which can be used in purchasing goods from us.

MUNCIE WHEEL & JOBBING CO.

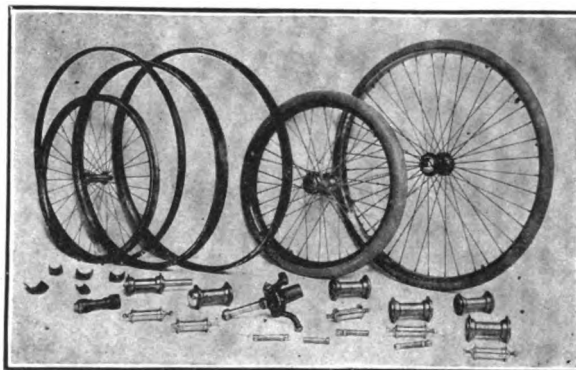
Taken from THE HUB,
January, 1902.

MUNCIE, IND.

WE WANT YOU

TO KNOW
THAT OUR MAKE OF

C
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WHEELS

IS SUPERIOR TO ALL OTHERS

CARRIAGE GEARS

STEEL RIMS

AUTOMOBILE STEERING DEVICES

I. A. WESTON CO.

Write for
Catalogue

SYRACUSE, N. Y.
JAMESVILLE, N. Y.

Bailey's

IS THE BEST
SHAFT SHACKLE

IT IS CALLED
THE

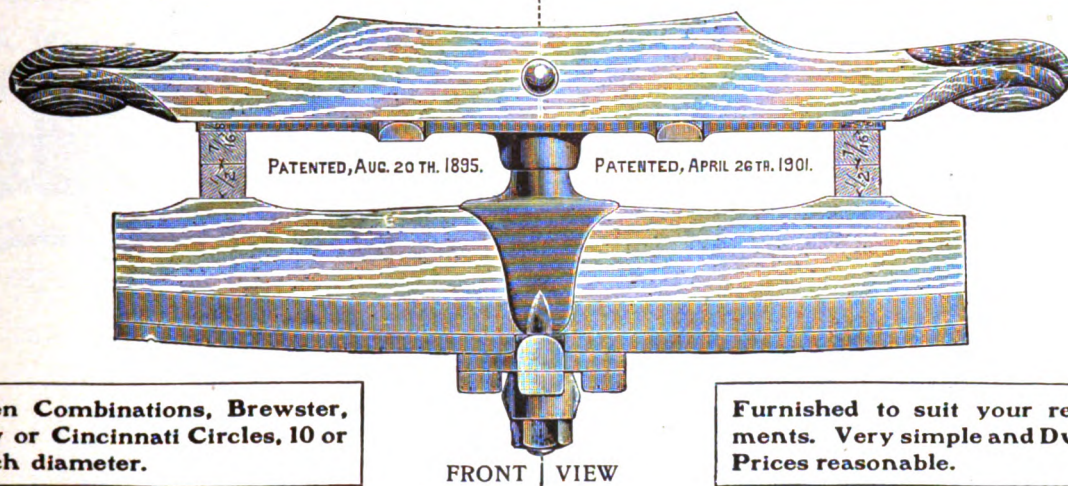
Bull Dog



S. R. Bailey & Co.

AMESBURY,
MASS., U.S.A.

OUR IMPROVED 1901 REAR CLIP KING BOLT GEAR SETS



Sixteen Combinations, Brewster, Derby or Cincinnati Circles, 10 or 12-inch diameter.

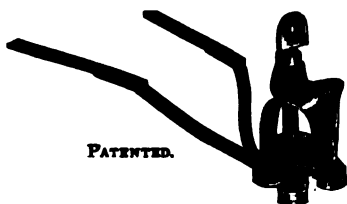
Furnished to suit your requirements. Very simple and Durable. Prices reasonable.

FOR BUGGIES AND SURREYS

We are getting in touch with the trade more every day. Just look at that front view appearance—just the same as a regular king bolt. Like that? Manufacturers see the point—can't help it. It appeals to them. Just notice—there is no king bolt through the head block or spring to break the paint. Right idea, likely to save a lot of money. Give us a chance to make some too. Another good idea.

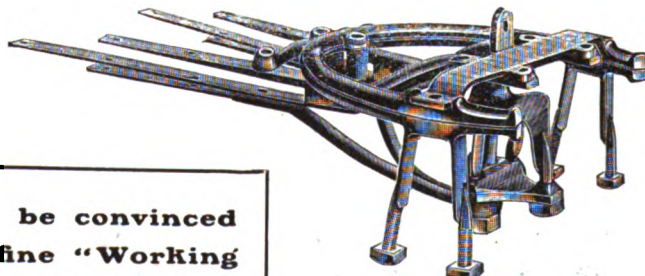
INTEGRAL THREE-PRONG

Clip King Bolt Combination.
DOUBLE BRACE.



Brewster No. 93-B.—No. 9 H. B. Plate.

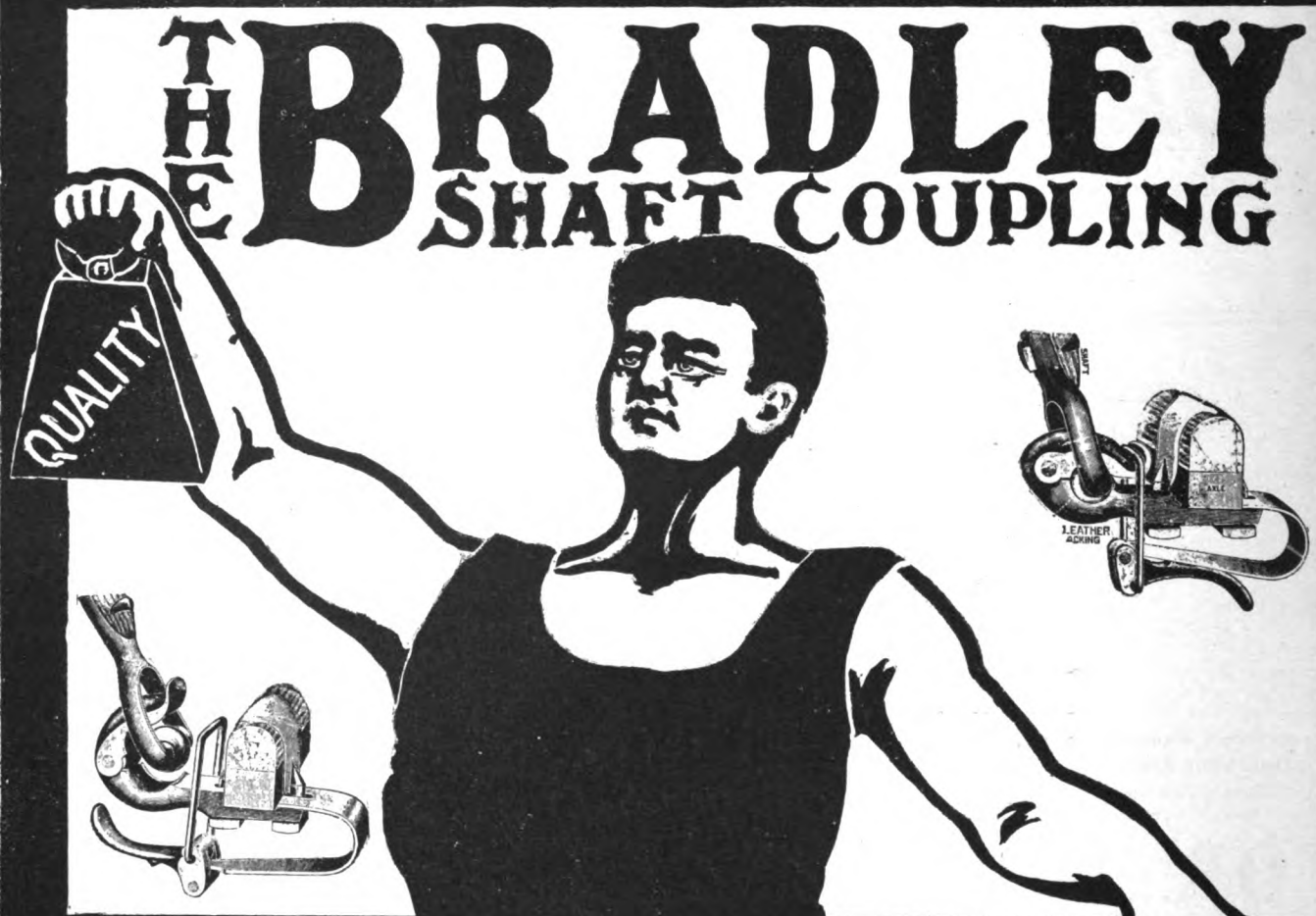
INTEGRAL Three-Prong Clip King Bolt.



Just try one sample. You will be convinced we have something fine. A fine "Working Chart" for you to get your gears made to sent by mail just for the asking. Correspondence solicited.

THE D. WILCOX MANUF'G CO.

MECHANICSBURG, PA.



QUALITY RAISED. PRICES LOWERED.

By making from 100,000 to 200,000 pairs of **BRADLEY COUPLINGS** this year we have been able to reduce the cost of production. By buying **STEEL BARS** when the market was much lower than at present we likewise saved money. The above are the reasons why we can offer you a better **BRADLEY SHAFT COUPLING** than ever before and at a much lower price. Our Couplings are made entirely of **STEEL**. We cannot compete in price with Couplings made largely of Malleable Iron or other inferior material.

Quality and advantages considered the **BRADLEY SHAFT COUPLING** is the cheapest on the market.

C. C. BRADLEY & SON,
SYRACUSE, N. Y.

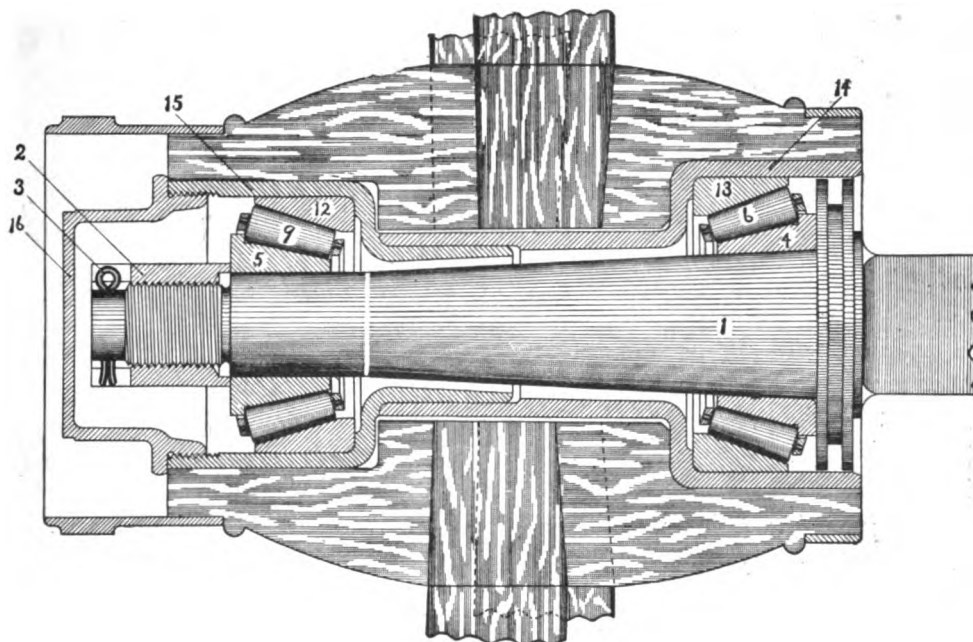
Please mention "The Hub" when you write.

Grant Roller Bearing Axles

We make the best
Anti-Friction Axle on
the market.

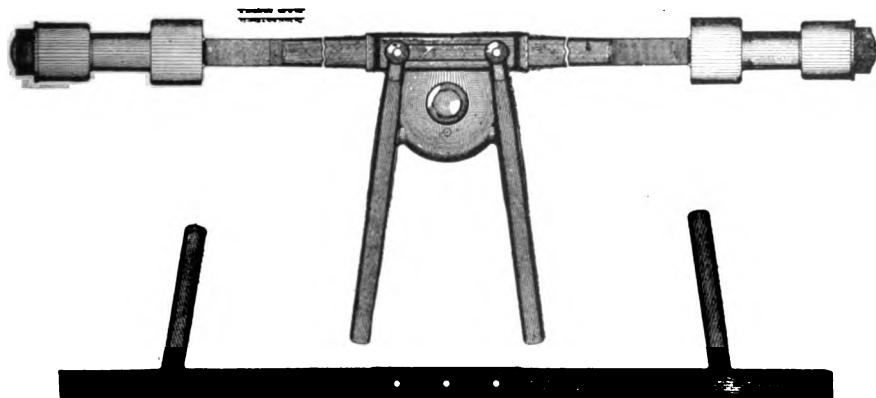
The one that has
stood the test of time.

We have all the facil-
ities for making them
in large quantities,
which means making
them cheap.



WE sell direct by Correspondence and Catalogue.
We have no expensive branch offices, etc., to
keep up and we will give our customers the
advantage of this saving in the selling expense. We
are satisfied with small profits, which means large sales.

GRANT BEARINGS GIVE UNIVERSAL SATISFACTION EVERYWHERE.
OUR REDUCED PRICES PLACE THEM WITHIN REACH OF ALL.



We sell 20th Century
Fifth Wheels and integral
perch connections.

Also Wood Wheels with
channels on and boxes set.

THE GRANT AXLE & WHEEL Co.

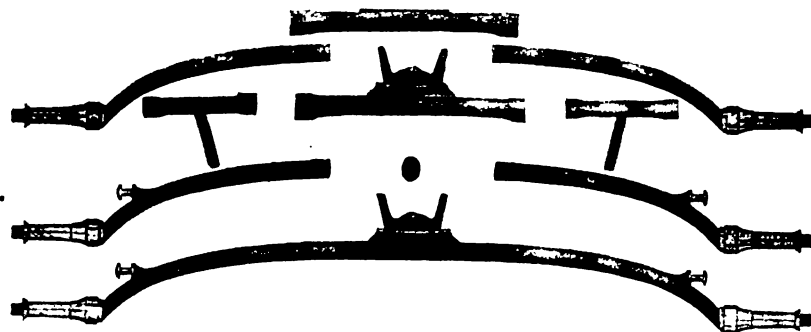
SPRINGFIELD, OHIO.

Please mention "The Hub" when you write.

New Designs and Bet

OVAL HIGH ARCH, TRUE SWEEP

BIKE WAGON AXLES AND FORGINGS



GOT THE METAL WHERE IT'S NEEDED
ARCH FROM THE COLLAR NOT A BREAK
NOT A FLAT PLACE---A TRUE TRUSS



BALL-BEARING OR **WIRE WHEELS**
LONG DISTANCE

For Cushion or Pneumatic Tires.



Weston-Mott Company,

ter Goods Than Ever

BIKE WAGON

AXLES and FORGINGS

ROUND OR SWAGED

BUGGY OR SURREY WEIGHT



BALL-BEARING OR LONG DISTANCE

WIRE WHEELS.

STEEL RIMS 



*New Flat Base Channel for 1 $\frac{1}{4}$ Inch
and 1 $\frac{1}{8}$ Inch Cushion Tires*



Before Placing Your 1902 Orders See Our Line.



Utica, New York.

C. COWLES & C^o

Ask us to quote
on Carriage and
Coach Lamps,
Axle and Saddle
Clips, Oval and
Flat Corner
Irons, "Excel-
sior" Curtain
Fasteners.

NEW HAVEN,
CONN, U. S. A.

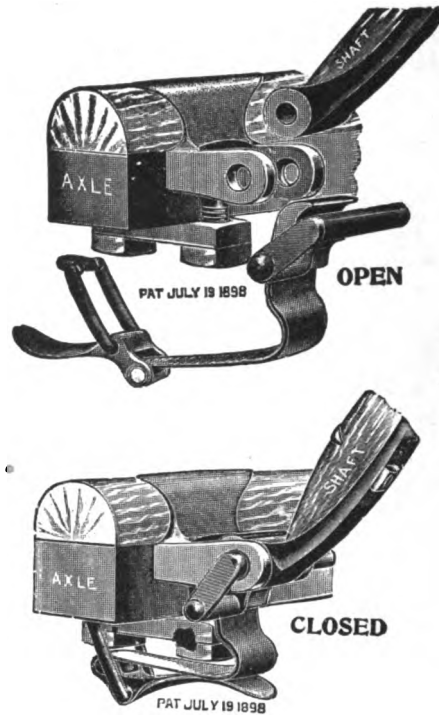
MILLED SHACKLE
BOLTS, CLOTH
AND METAL
BUTTONS,

Door Handles,
Shaft Tips.

WE ARE HEADQUARTERS FOR ABOVE.

LARGEST VARIETY
OF LAMPS FOR
..1901..

IDEAL Quick Shifter and Anti-Rattler



The "Ideal" never fails. It is the most complete Anti-Rattler and Quick-Shifter on the market. Fits any wagon, new or old, without the use of mechanic or tools. Can change from pole to shaft in less time than it takes to tell it. Hand forged steel bolt, HEAVY BEARINGS, NO RUBBER OR LEATHER to get out of order. Oneida Community trap steel spring. A postal card will bring you price list. The "Ideal" is extremely popular—it helps sell carriages. They are their own testimonial. Send fifty cents for a trial pair.

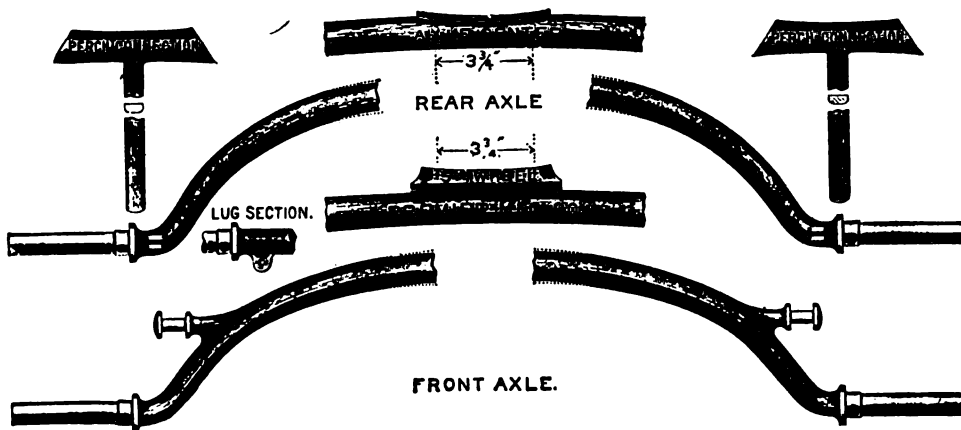
IDEAL MFG. CO.,

Oneida, N. Y., U. S. A.

PREMIER MANUFACTURING COMPANY

HARTFORD, CONN.

We can supply..



GEAR SET No. 2

WRITE FOR PRICE LIST

Gear Sets in twenty-nine (29) different styles and sizes for wood and wire wheels, with ball bearing or plain axles, and Premier, Bailey and Brewster 5th wheels.

We have every known combination of Gear Sets for Bike and Pneumatic Wagon Construction. Quality: the Best; Prices: very reasonable.

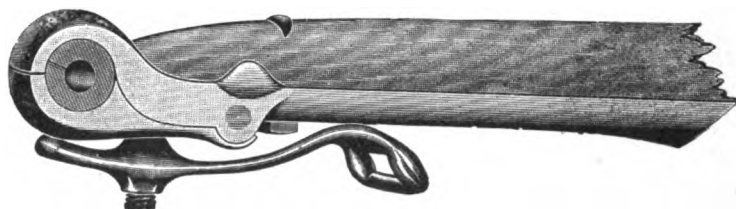
**PREMIER
Gear Sets
Etc....**

are the best
obtainable
because they
are made
right.

Please mention "The Hub" when you write.

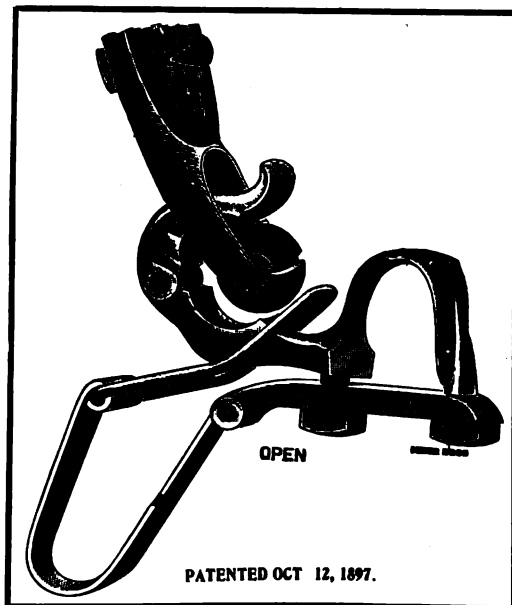
Eccles Adjustable Shaft Eye.

PATENTED AUGUST 24th, 1904.



Ball Bearing Shaft Coupling.

SEND FOR DESCRIPTIVE CIRCULARS AND PRICES.



PATENTED OCT 12, 1897.

ALSO GET OUR CATALOG SHOWING FULL LINE OF

Carriage Forgings.

RICHARD ECCLES CO.,

AUBURN, N. Y.

C.H.A.T.

Helps Secure Situations.

Carriage, Harness and Accessory Traveling Salesmen's Association

OF THE UNITED STATES.

All Commercial Travelers in Above Lines Eligible.
No Others. Pays Death Benefits.

Membership Fee, - - \$3.00

Annual Dues, - - - - 1.00

Employers of Traveling Men eligible to join as associate members on payment of \$5.00, and are exempt from all further dues.

Manufacturers of carriages, harness or goods that enter into their construction, jobbers of same, can secure good, reliable and efficient salesmen through our Association, as the members of this Association have the best facilities for knowing all about men who are seeking situations, and none will be recommended unless they are first class and worthy of support.

Salesmen in need of a situation, or manufacturers in need of a salesman, address for further information,

L. H. KRONFELD, Secretary.

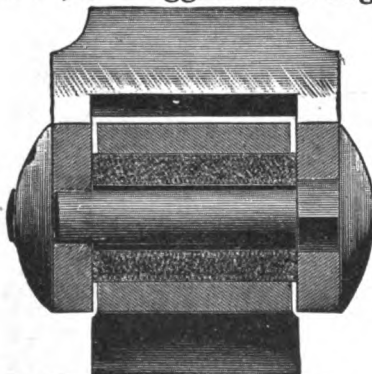
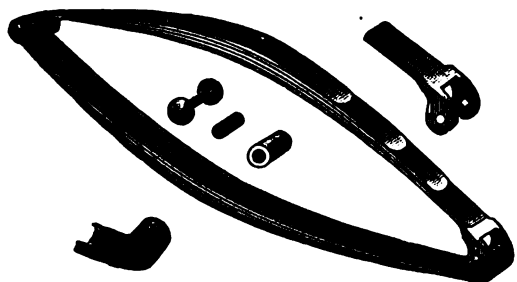
Box 57, Mount Vernon, N. Y.

Elliptic and Coach Platform Springs

WITH RUBBER OPEN-HEADS.

LARGE SIZE.—Designed for Broughams, Landaus and Coaches.

SMALL SIZE.—Designed for Buggies and Light Carriages.



The Rubber Open-Head

SPRINGS

Work Freely Without Friction.

No Binding or Squeaking in
the Heads or Eyes.

SPRINGS OF EVERY STYLE AND PATTERN TO ORDER,
ALSO CURTAIN ROLLERS AND CONCEALED HINGES.

Exclusively First-Class Work.—The Best that Can be Made.

Spring Perch Co.,
BRIDGEPORT, CONN.

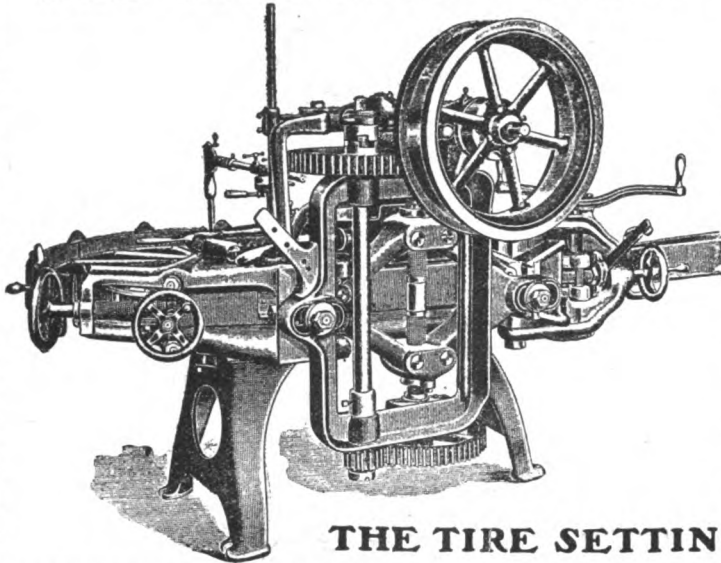
Please mention "The Hub" when you write.

The McGovern Cold Tire Setting Machine

HAND AND POWER MACHINES

To Supply the Demands of the

CARRIAGE AND WHEEL TRADE, AND ALSO THE
BLACKSMITH AND GENERAL REPAIRER.



A power machine with an automatic attachment, and where the operator has absolute control of the machine; can stop or start it instantly at any point in its operation.

Simple in construction. Powerful in operation. Reasonable in price. Does its work thoroughly, accurately and rapidly, giving proper and uniform dish to wheels.

THE NEW MODEL MCGOVERN COLD TIRE SETTING MACHINE with its increased capacity, simplicity and strength, all three points being more than tripled in this new machine, we guarantee to set Tires ranging from $\frac{3}{4}$ inch to $2\frac{1}{2}$ inch x $\frac{1}{2}$ inch. Our daily capacity from 800 to 1,000 wheels.

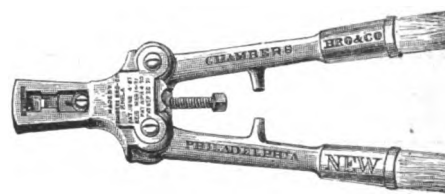
We shall be at the Pan-American Exposition in Buffalo. Our machine will be in operation at the factory of the Buffalo Spring & Gear Co., three minutes' walk from the grounds.

THE TIRE SETTING MACHINE CO., Lime Rock, Conn.

Patents, Pensions, Caveats, Trade Marks, Design-Patents, Copyrights, etc.

CORRESPONDENCE SOLICITED.

Le Droit Building,
Washington, D. C. **John A. Saul.**



**BOLT AND RIVET
CLIPPERS**

Chambers Brothers Co.
52d Street, below Lancaster
Avenue,
Philadelphia, Pa.



A New

Tire Drill

Most rapid working tool on the market for this class of work.

Capacity:

Any wheel up to 56 in. diam.
Any width of tire up to 6 in. wide.
Any hub up to 10 in. diam.

Better get some details of this Drill.

Send for Catalogue.

Established 1872.

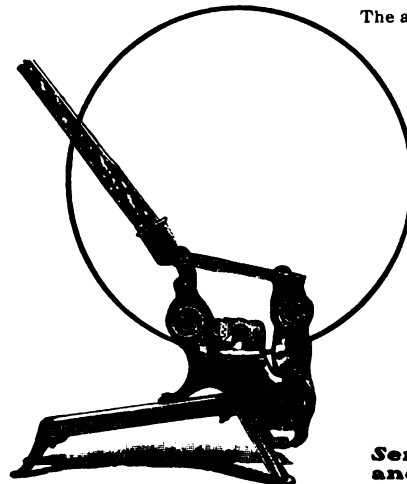
W. F. & JNO. BARNES CO.

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The Ideal Tire Upsetter

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It will shrink light Buggy tire.
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It will shrink perfectly all kinds and thicknesses of tire.
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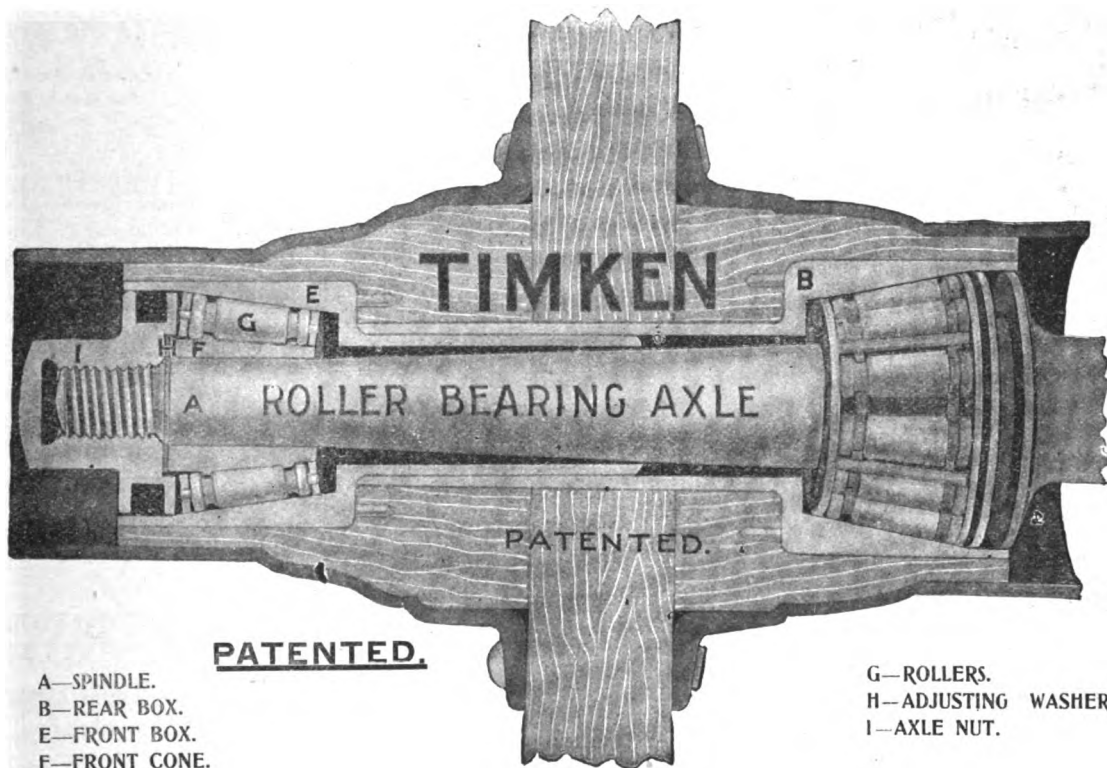
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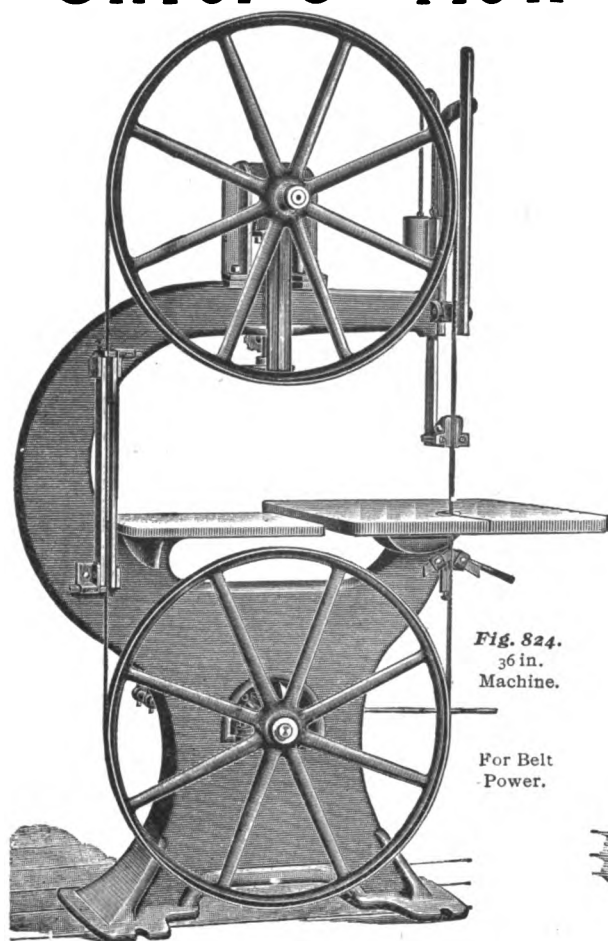


Fig. 824.
36 in.
Machine.

For Belt
Power.

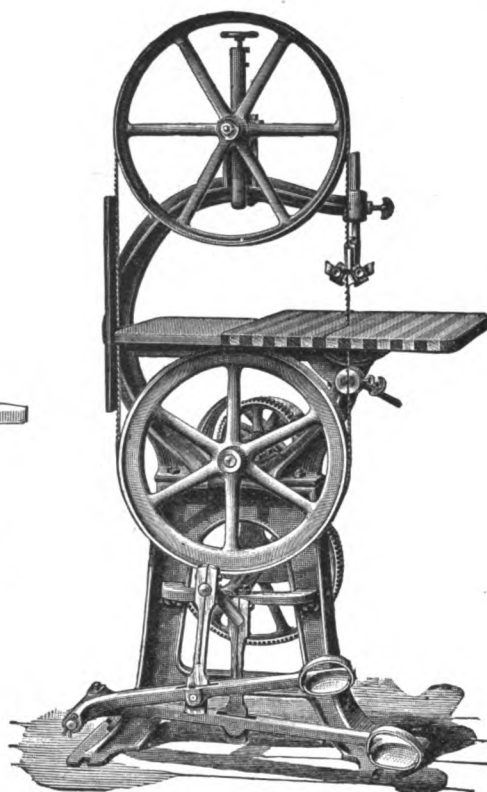


Fig. 721.
30 in. Machine. Combined Foot or Belt Power.

IN SIZES:

20 in. machine for foot or belt power.
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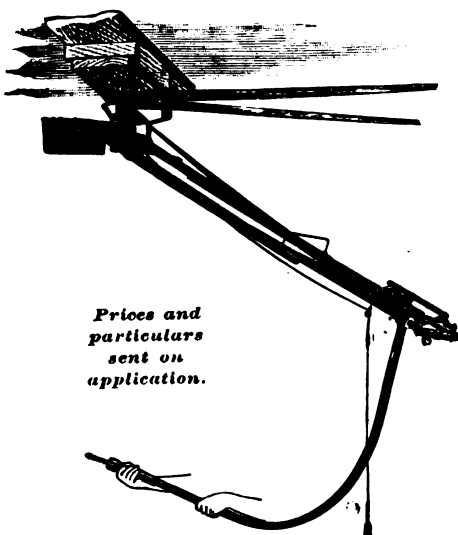
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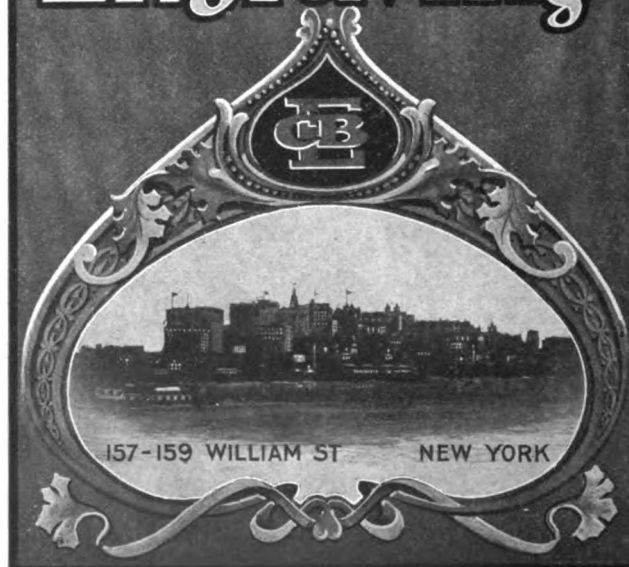
Manufacturing Co., - Binghamton, N. Y.

General European Agents,

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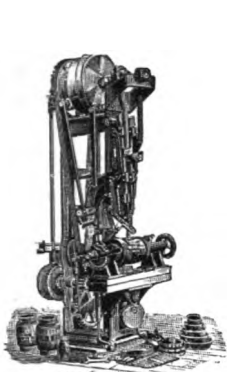
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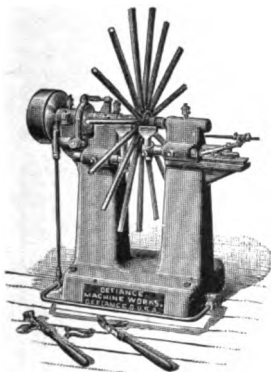


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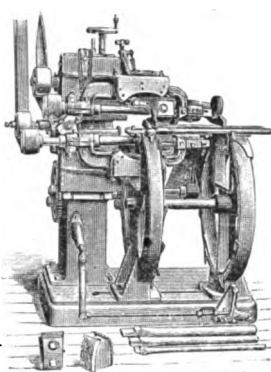
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Automatic Hub Mortiser.



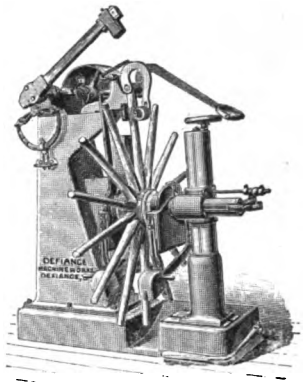
Sarven Flange Seat Facer.



Automatic Spoke Throater.

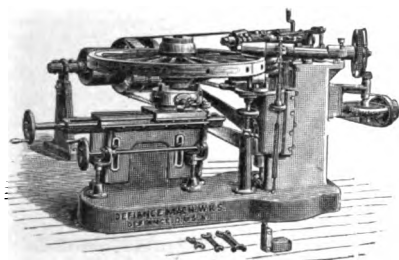


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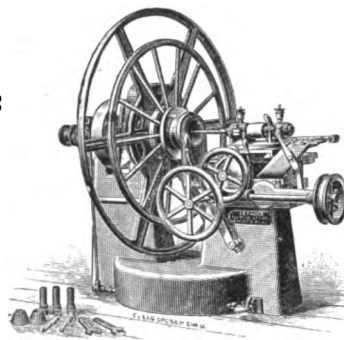
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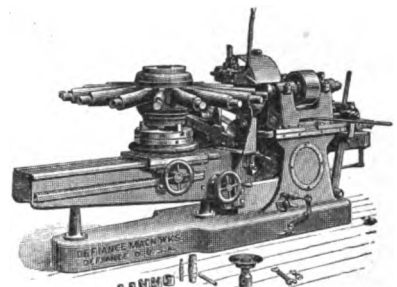
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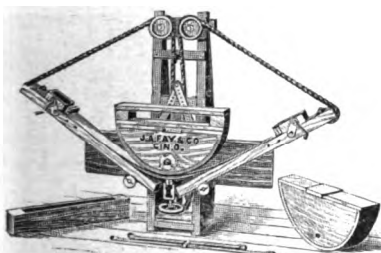
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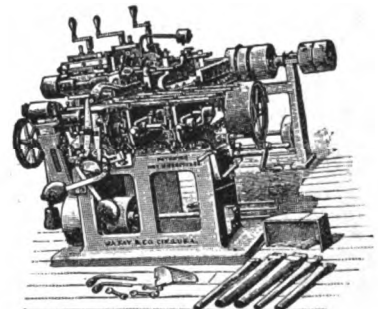
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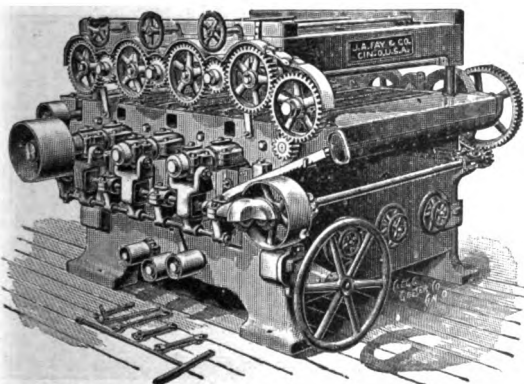
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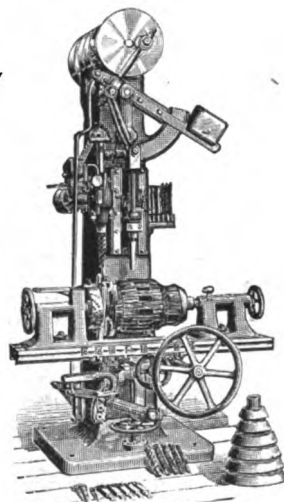
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showing
these
machines
free



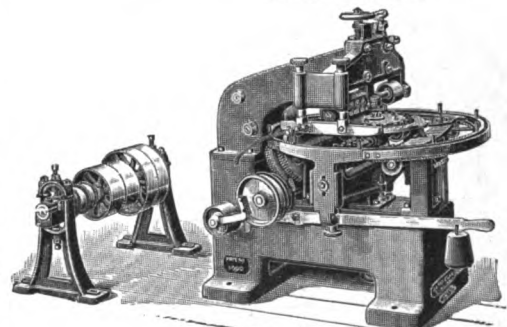
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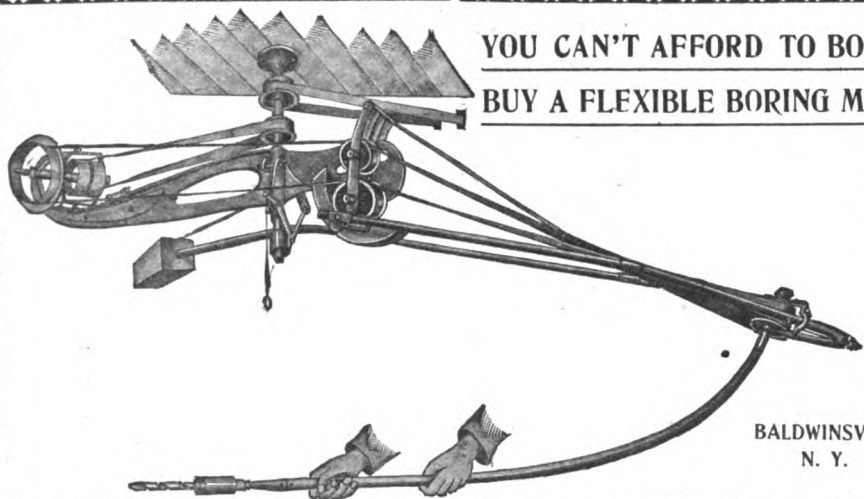


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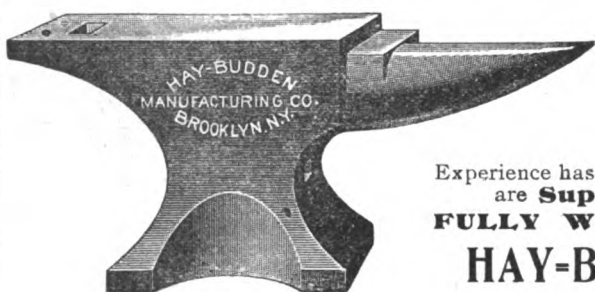
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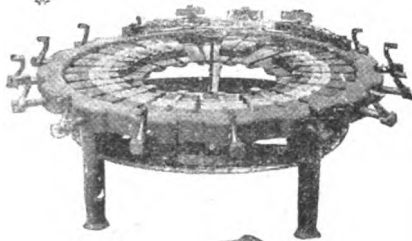
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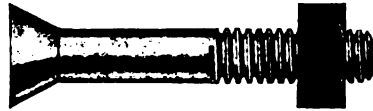
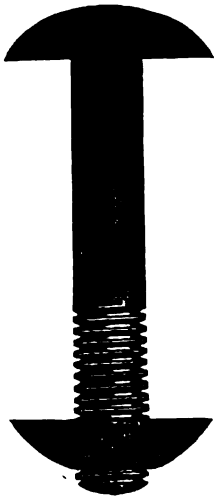
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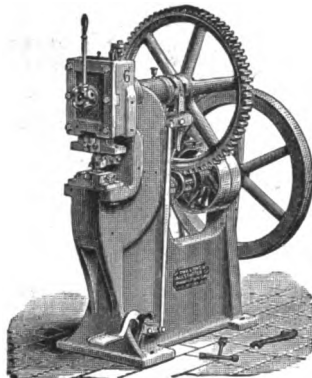
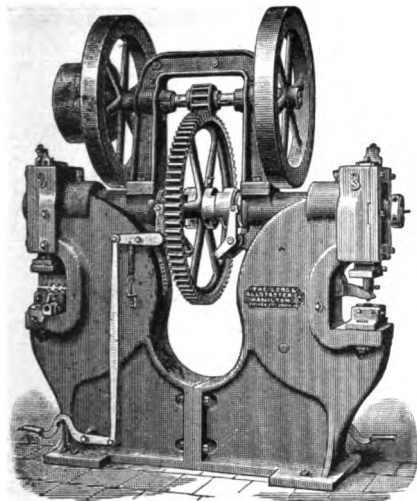
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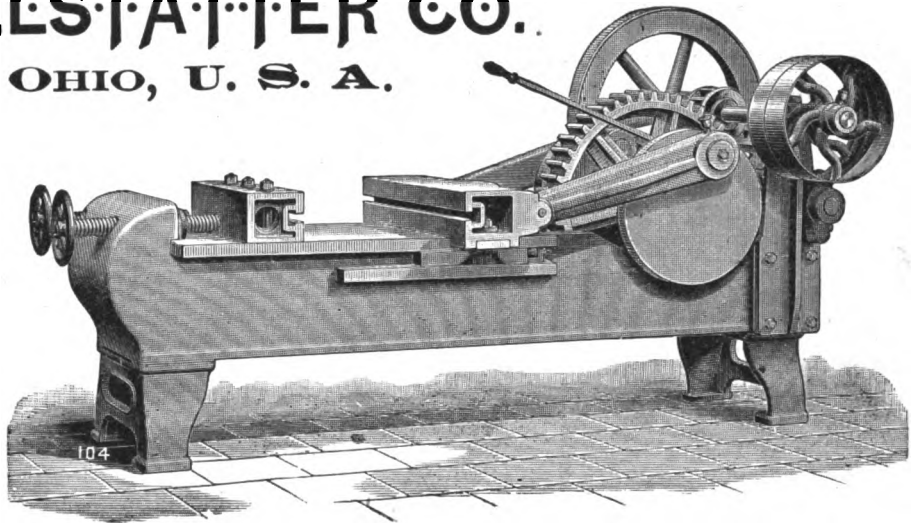
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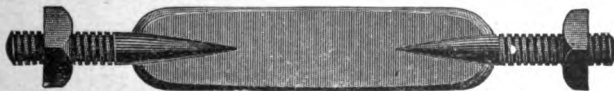
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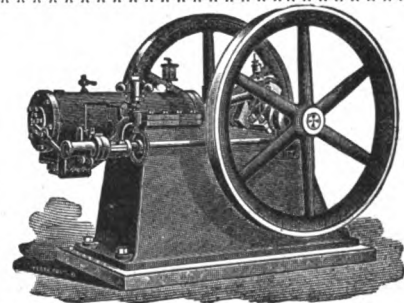
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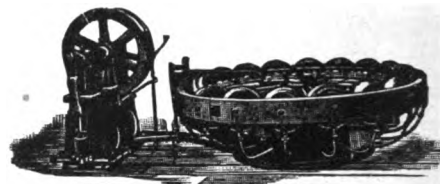
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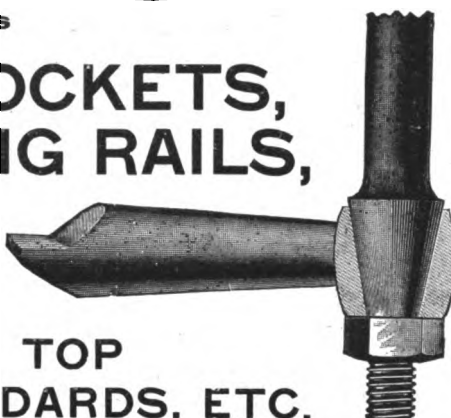


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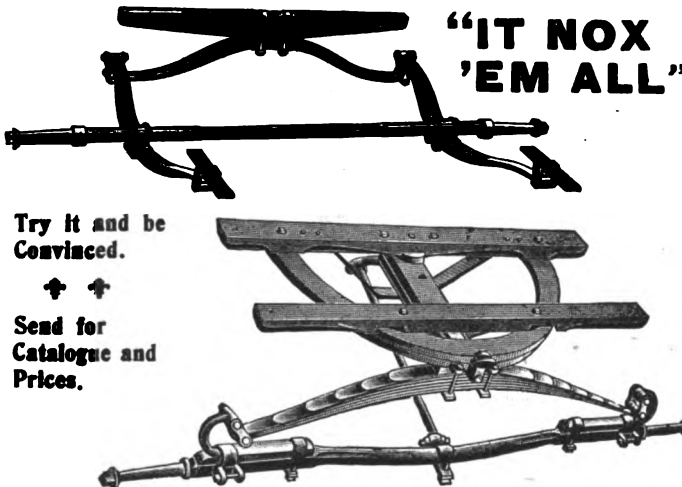
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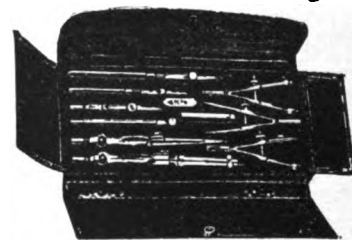
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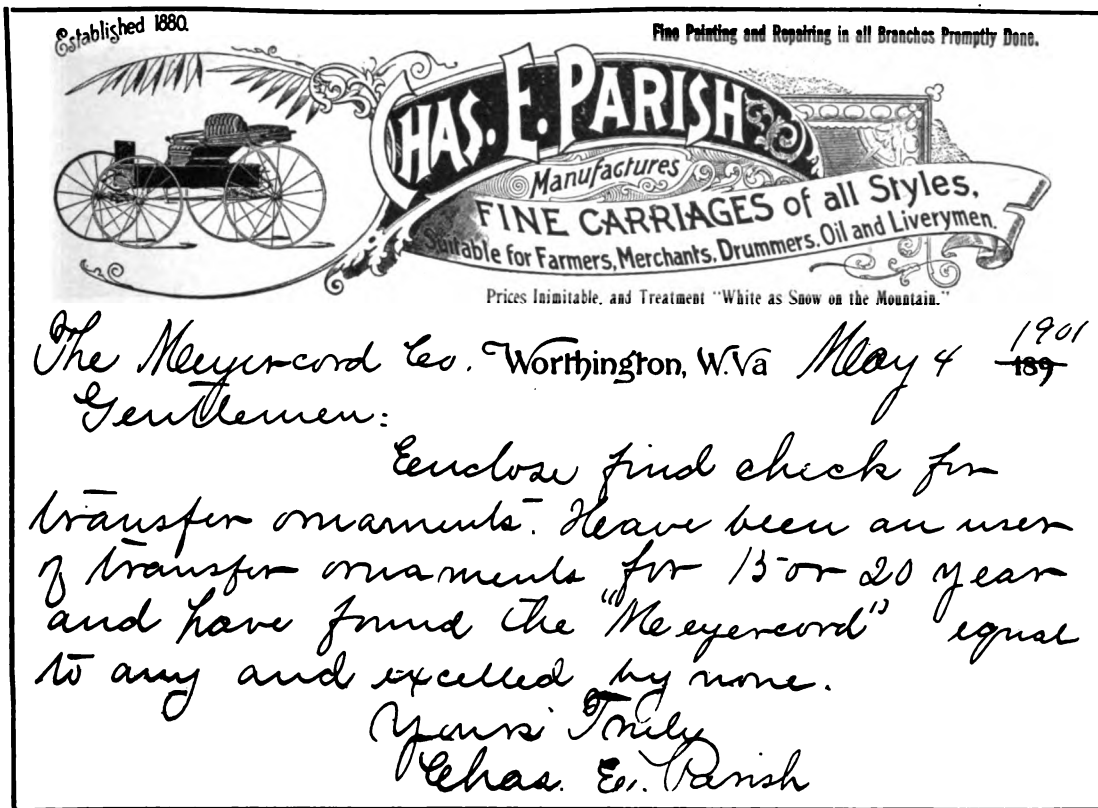
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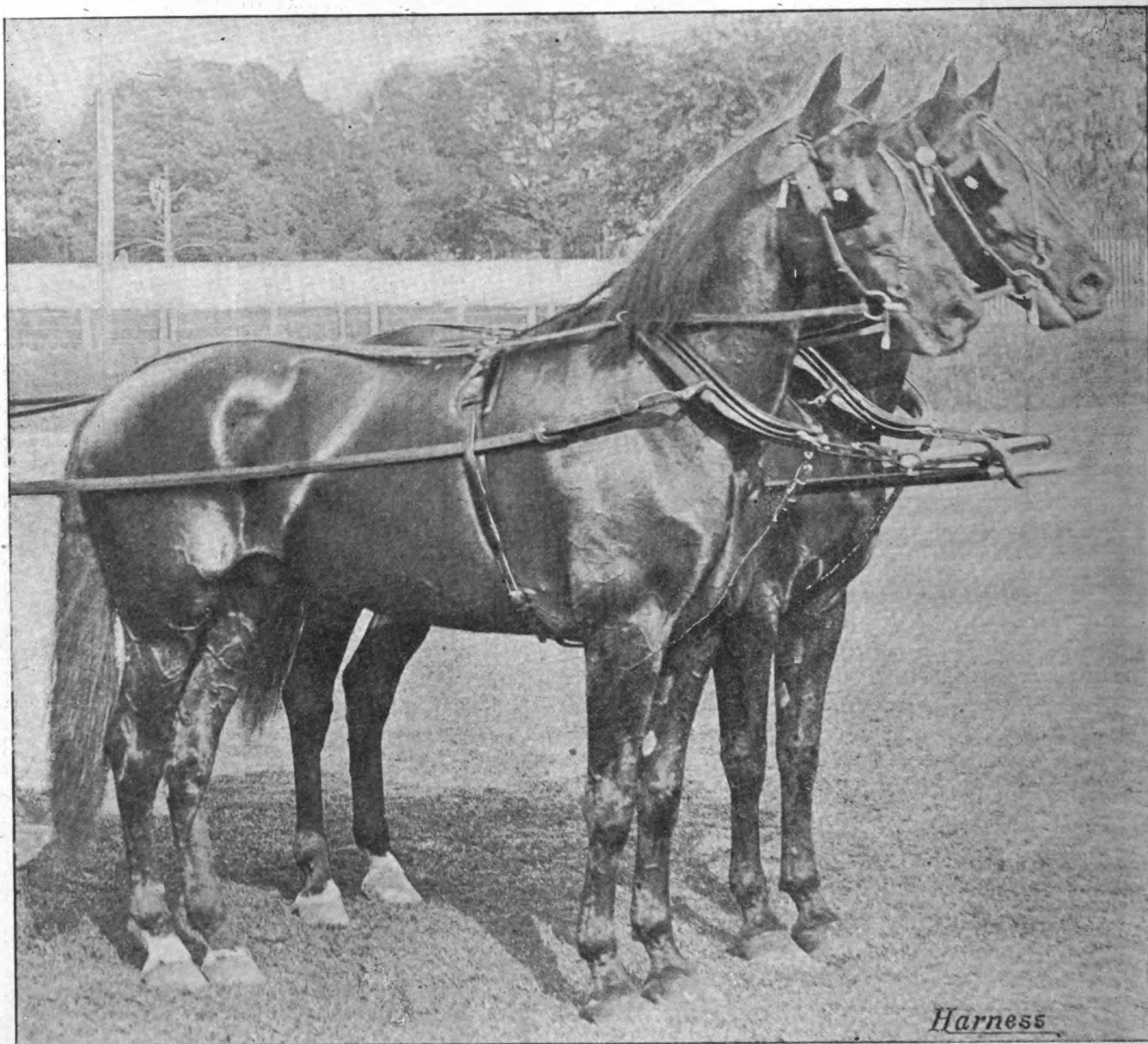
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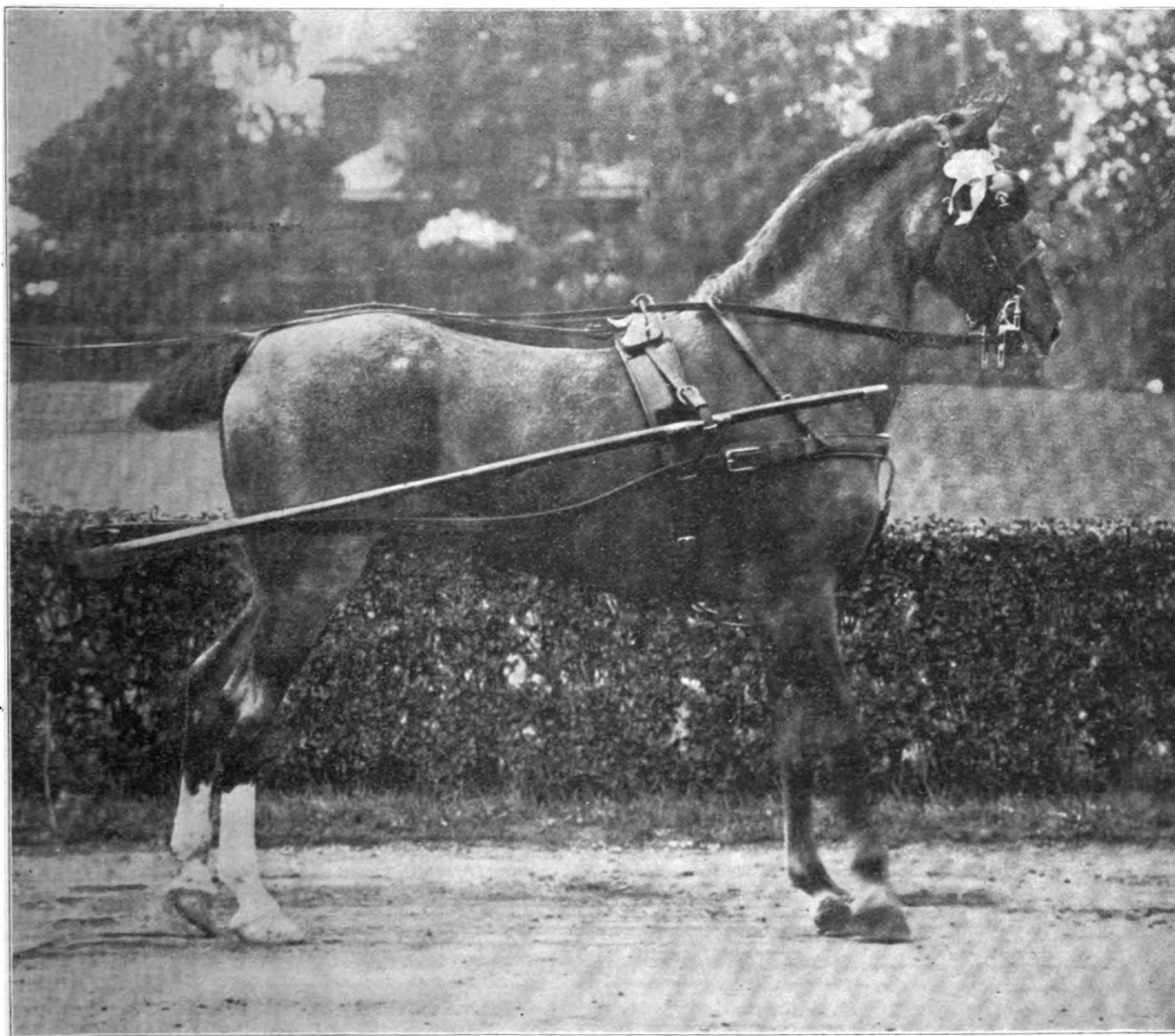


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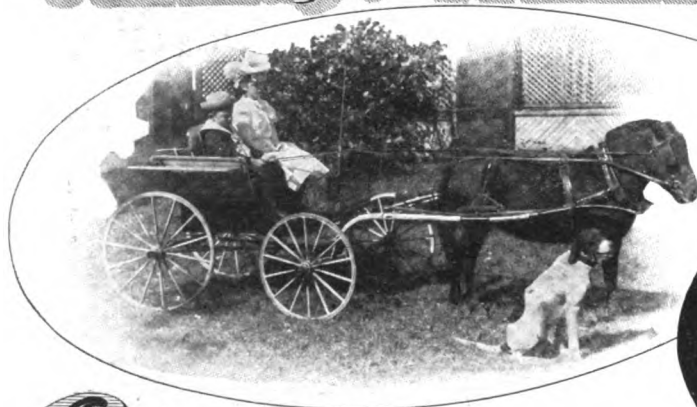


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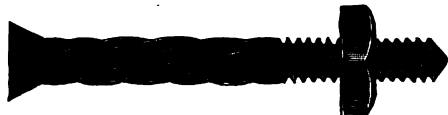
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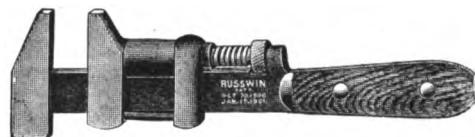
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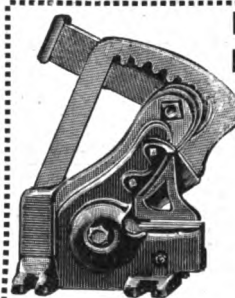
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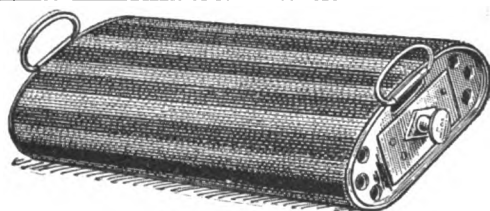
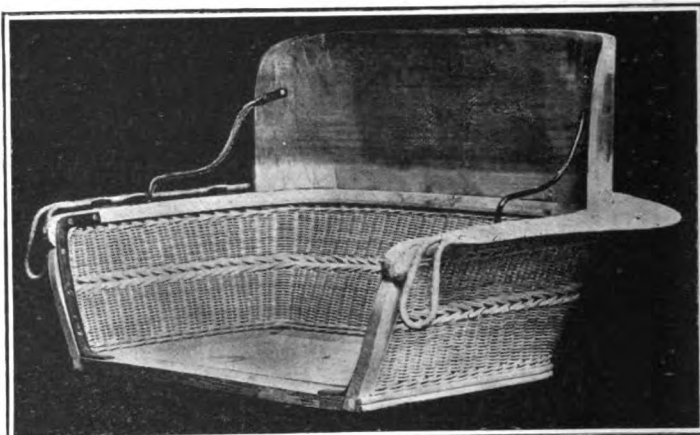
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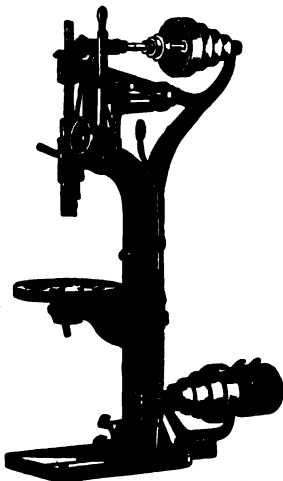
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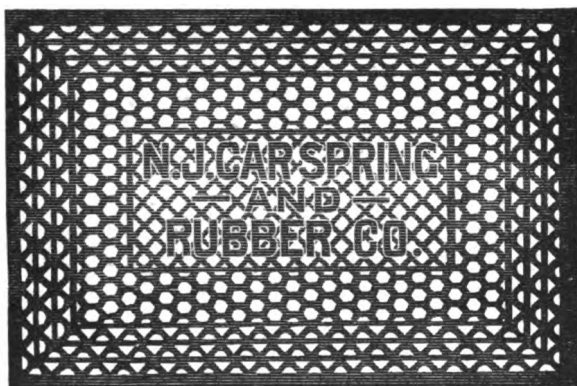
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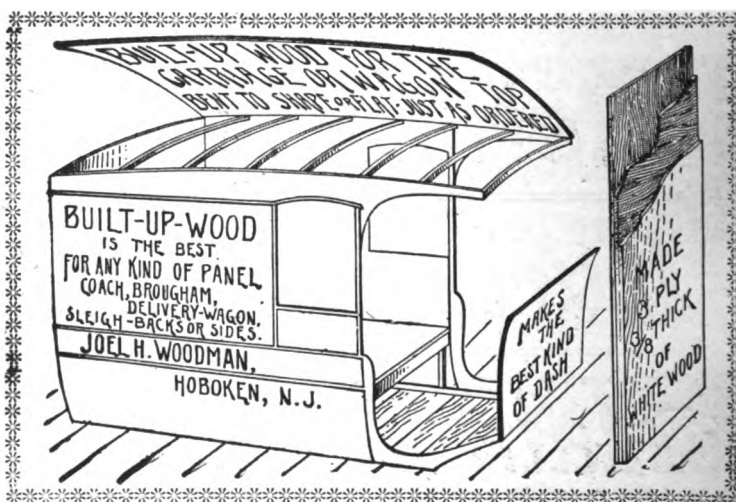


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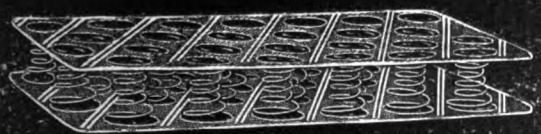
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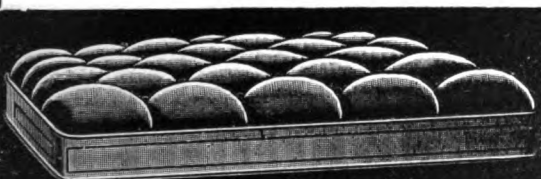
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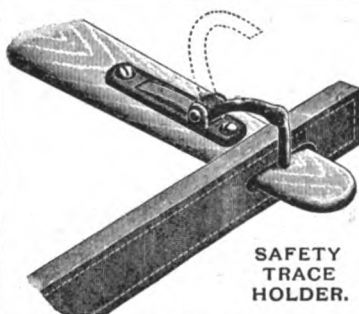
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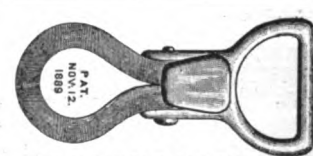


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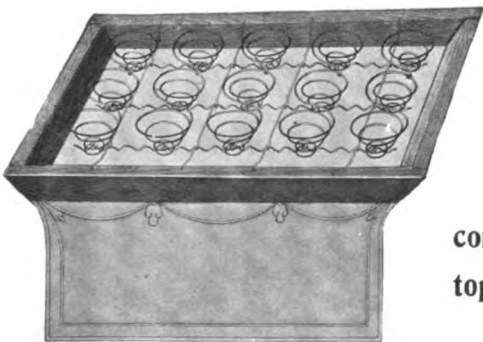
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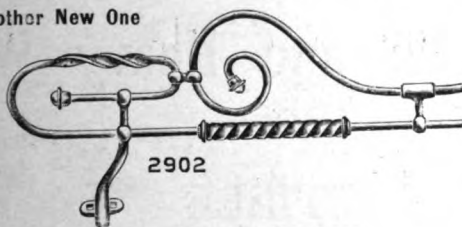
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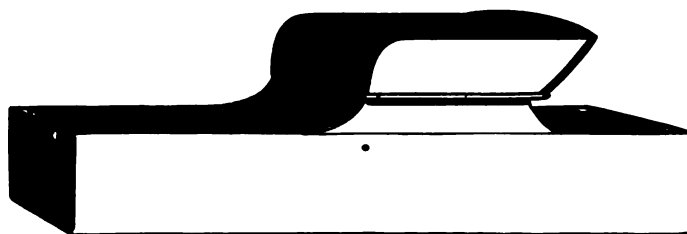
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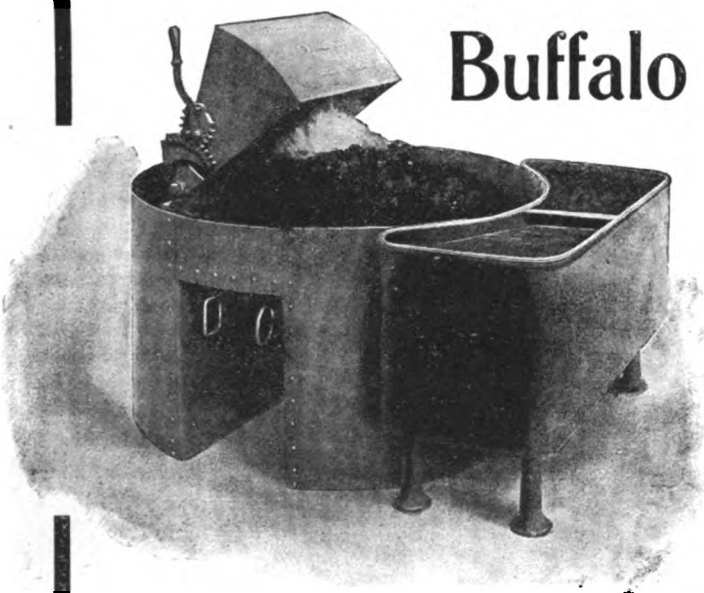
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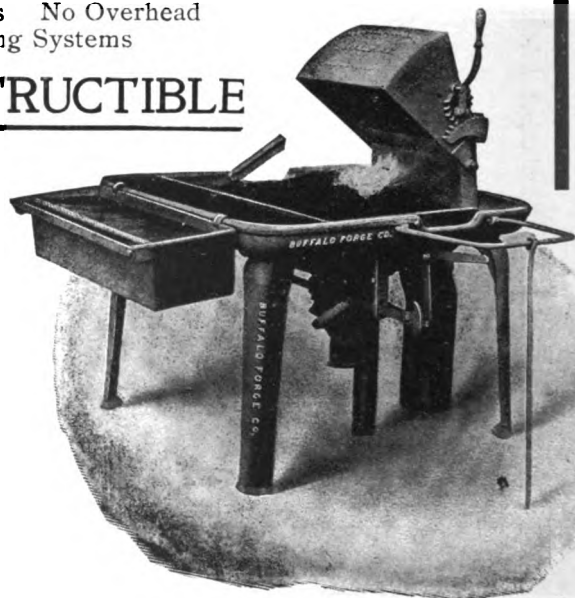
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A		E		L		S	
Acme Supply Co.....	41	Eastman Metallic Body Co., The.....	54	Landers Bros. Co.....	88	Saul, John A.....	72
Allentown Platform Spring Co..	54	Eberly & Orris.....	54	Lauder, Harter & Harsh Mfg.	88	Schmid, F. J.....	86
Ameriman Roller Bearing Co....	62	Eccles Co., Richard.....	71	Co.....	88	Schubert Bros. Gear Co.....	49
American Steel & Wire Co.....	87	Egan Co., The.....	75	Lowell Model Co.....	40	Scranton & Co., The.....	83
Armleder Co., O.....	31	Elmendorf Varnish Co.....	5	Lounsbury & Sons, G. H.....	—	Seinsheimer Paper Co.....	85
Armstrong Mfg. Co., J. B.....	59	English & Mersick Co.....	82	Long & Allstatter Co.....	77	Selle Gear Co.....	64
Aubry Carriage Co., Lee J.....	31	Erie Railroad Co.....	52	Liggett Spring & Axle Co.....	65	Shaeffer, Bunce & Co.....	40
Automobile & Cycle Parts Co....	44	Excelsior Carriage Co.....	27	Lehman Bros.	84	Sheldon Axle Co.....	62
Avoca Wheel Co.....	48			Lee & Porter.....	56	Sherwin-Williams Co.	1
B		F		M		Shortsville Wheel Co.....	8
Babcock Co., H. H.....	34	Fancher Mch. Co., The.....	76	McCormick, Edward H.....	88	Shuler, W. S., & Thomas Sp. C.	6
Bailey & Co., S. R.....	64	Fay & Co., J. A.....	75	McKinnon Dash Co.....4th cover	—	Silver Mfg. Co.....	74
Bantam Mfg. Co.....	62	Felton, Sibley & Co.....	2	Masury & Son, John W.....	4	Smith & Co., Edward.....4th cover	—
Barnes Co., B. F.....	84	Firestone Tire & Rubber Co.....	20	Meeker Mfg. Co.....	—	Smith & Co., Joseph N.....	89
Barnes Co., W. F. & John.....	72	Fitch Gear Co.....	49	Metal Stamping Co.....	—	Somerset Mfg. Co.....	90
Beardsley & Hubbs Mfg. Co.....	39	Fowler Elastic Enamel Paint Co.	7	Meyercord Co.....	79	Sovereign, C. E.....	57
Berry Bros.	2	Frantz Body Mfg. Co.....	51	National Mercantile Agency....	9	Spears Axle Co.....	56
Bicknell Hardware Co., The.....	83			Neustadt, Perry Co.....	72	Sprague Umbrella Co., The.....	89
Big Four Route.....	52			New Jersey Car Spring & Rub-	—	Spring Perch Co.....	71
Blees, McVicker Carriage Co.....	23			Morse Twist Drill & Machine Co.	83	Standard Anti-Friction Equip-	12, 13
Boob, W. W.....	—			Mulholland Spring & Gear Co..	61	ment Co.....	—
Boston Roller Chafe Iron Co....	72			Muncie Wheel & Jobbing Co.....	63	Standard Tire Setter Co.....	76
Bradley & Sons, C. C.....	69			Murphy Varnish Co.....	47	Standard Tool Co.....	5
Bridgeport Coach Lace Co.....	88					Standard Varnish Works.....	3
Brighton Buggy Co.....	22					Staples & Hanford.....	83
Bringardner & Conkle.....	53					Staver Carriage Co.....	—
Brown-Lipe Gear Co.....	41					Stearns Steam Carriage Co.....	38
Buffalo Forge Co.....	90					Stephan & Son, J. H.....	—
Buffalo Spring & Gear Co.....	35					Stevens & Sackett Co.....	—
Buhne Steel Wool Co.....	3					Sterling Buggy Co.....	30
C						Stow Mfg. Co.....	74
Caulfield, John.....	60					Suwanee Spoke & Lumber Co....	86
Central Bureau of Eng.....	74						
Chamber Bros. Co.....	72						
Chicago Automobile Show.....	37						
Chicago Flexible Shaft Co.....	57						
Chicago, Milwaukee & St. Paul	—						
R. R.....	8						
Cincinnati Panel Co.....	51						
Clapp Mfg. Co., E. D.....	83						
Clark, Edward S.....	41						
Cleveland Bag Factory.....	85						
Cleveland-Canton Spring Co....	28						
Clyde Line.....	2						
Cole Co., G. W.....	—						
Columbia Wagon Co.....	27						
Columbus Bolt Works.....	77						
Columbus Machine Co.....	77						
Columbus Varnish Co.....	9						
Consolidated Rubber Tire Co....	18, 19						
Cooper Bros.	84						
Cooper Co., J. A. & D. P.....	58						
Cortland Carriage Goods Co....	—						
Cortland Forging Co.....	78						
Covert Saddlery Works.....	93						
Cowles & Co., C.....	70						
Crandal, Stone & Co.....	—						
Crane & MacMahon.....	55						
Crest Mfg. Co.....	—						
D							
Dalzell Axle Co.....	58						
Decatur Buggy Co.....	23						
Defiance Machine Works.....	75						
Derby & Co., W. E.....	92						
Detroit Spring & Steel Co.....	1						
Devoe, F. W., & Reynolds Co.,	—						
C. T.....	2d cover						
Dewes & Whiting.....	11						
Dickinson Bros.	80						
H							
Hagerstown Spoke & Bending Co.	54						
Halliday, C. A.....	86						
Harland & Son, Wm.....2d cover	—						
Hartford Axle Works.....	56						
Hartford Rubber Works.....	14						
Hay-Budden Mfg. Co.....	76						
Higgin Mfg. Co.....	—						
Hildreth Varnish Co.....4th cover	—						
Hoopes Bros. & Darlington.....	53						
Horton, H. A.....	—						
Hutton & Co., G. H.....	51						
I							
Ideal Mfg. Co.....	70						
Illinois Central Railroad.....	63						
Industrial Locations.....	52						
India Rubber Co.....	17						
Initial Toe Pad Co.....	86						
International Motor Car Co....	38, 43						
J							
Jackson Cushion Spring Co.....	88						
Jones & Co., Phineas.....	53						
Jube & Co., John P.....	88						
K							
Keator & Wells.....	34						
Keuffel & Esser Co.....	78						
Keystone Carriage Co.....	32						
Keystone Paint & Filler Co....	2						
Kimble, Andrew.....	55						
Kimbark, S. D.....	90						
King Spring Co.....	36						
Kokomo Rubber Co.....	15						
Kramer, W. F.....	78						
L							
Landers Bros. Co.....	88						
Lauder, Harter & Harsh Mfg.	88						
Co.....	88						
Lowell Model Co.....	40						
Lounsbury & Sons, G. H.....	—						
Long & Allstatter Co.....	77						
Liggett Spring & Axle Co.....	65						
Lehman Bros.	84						
Lee & Porter.....	56						
M							
McCormick, Edward H.....	88						
McKinnon Dash Co.....4th cover	—						
Masury & Son, John W.....	4						
Meeker Mfg. Co.....	—						
Metal Stamping Co.....	—						
Meyercord Co.....	79						
National Mercantile Agency....	9						
Neustadt, Perry Co.....	72						
New Jersey Car Spring & Rub-	—						
Morse Twist Drill & Machine Co.	83						
Mulholland Spring & Gear Co..	61						
Muncie Wheel & Jobbing Co.....	63						
Murphy Varnish Co.....	47						
N							
Miller Bros.	33						
Mitchell Co., P. R.....	85						
Mobile Co., of America.....39, 43	—						
ber Co.	86						
New York Belting & Packing Co.	21						
Novelty Tufting Machine Co....	87						
O							
Olds Motor Works.....	38						
P							
Palm, Fechteler Co.....	3						
Pantasote Co.	85						
Parrott Varnish Co.....2d cover	—						
Perry Mfg. Co.....	26						
Pennsylvania Rubber Co.....	—						
Peters & Herron Dash Co., The	4th cover						
Pomeroy & Fisher.....	4						
Pontiac Buggy Co.....	36						
Porter, H. K.....	83						
Premier Mfg. Co.....	70						
Potter, Morgan.....	54						
R							
Raritan Woolen Mills.....	90						
Rattan Novelty Co., The.....	84						
Raymond Mfg. Co.....	63						
Reading Automobile & Gear Co..	41						
Revere Rubber Co.....	20						
Rex Buggy Co.....	33						
Richland Vehicle Co.....	29						
Rohde & Haskins.....	40						
Rouse & Co., J. D.....	—						
Rowland, Wm. & Harvey.....2d cover	—						
Russell & Co., J. W.....	84						
Russel, Birdsall & Ward Bolt &	—						
Nut Co.	76, 77						
Russell & Erwin Mfg. Co.....	83						
S							
Saul, John A.....	72						
Schmid, F. J.....	86						
Schubert Bros. Gear Co.....	49						
Scranton & Co., The.....	83						
Seinsheimer Paper Co.....	85						
Selle Gear Co.....	64						
Shaeffer, Bunce & Co.....	40						
Sheldon Axle Co.....	62						
Sherwin-Williams Co.	1						
Shortsville Wheel Co.....	8						
Shuler, W. S., & Thomas Sp. C.	6						
Silver Mfg. Co.....	74						
Smith & Co., Edward.....4th cover	—						
Smith & Co., Joseph N.....	89						
Somerset Mfg. Co.....	90						
Sovereign, C. E.....	57						
Spears Axle Co.....	56						
Sprague Umbrella Co., The.....	89						
Spring Perch Co.....	71						
Standard Anti-Friction Equip-	12, 13						
ment Co.....	—						
Standard Tire Setter Co.....	76						
Standard Tool Co.....	5						
Standard Varnish Works.....	3						
Staples & Hanford.....	83						
Staver Carriage Co.....	—						
Stearns Steam Carriage Co.....	38						
Stephan & Son, J. H.....	—						
Stevens & Sackett Co.....	—						
Sterling Buggy Co.....	30						
Stow Mfg. Co.....	74						
Suwanee Spoke & Lumber Co....	86						
T							
Thompson, F. H.....	67						
Timken Roller Bearing Axle Co..	73						
Tire Setting Machine Co.....	72						
Tuthill Spring Co.....	62						
U							
U. S. Sanitary Co.....	—						
V							
Valentine & Company.....	8						
Victor Rubber Tire Co.....	16						
W							
Walter, N. C., & Sons.....	40						
Wapakoneta Wheel Co.....	57						
Waterloo Wagon Co.....24, 25	—						
Watertown Carriage Co.....	—						
Weston & Co., I. A.....	63						
Weston-Mott Co.	68, 69						
West Tire Setter Co.....	78						
Weyburn & Briggs Co.....	72						
Wheel & Wood Bending Co....	54						
White Mfg. Co.....	—						
Wilcox Mfg. Co., D.....	65						
Willey, C. A.....2d cover	—						
Williams, Max.....	39						
Wilmot & Hobbs Mfg. Co.....	5						
Woodman, Joel H.....	86						
Z							
Zacher & Co., C. P.....	82						
Zwick & Greenwald Wheel Co....	57						

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Vol. XLIII., No. 11

February, 1902

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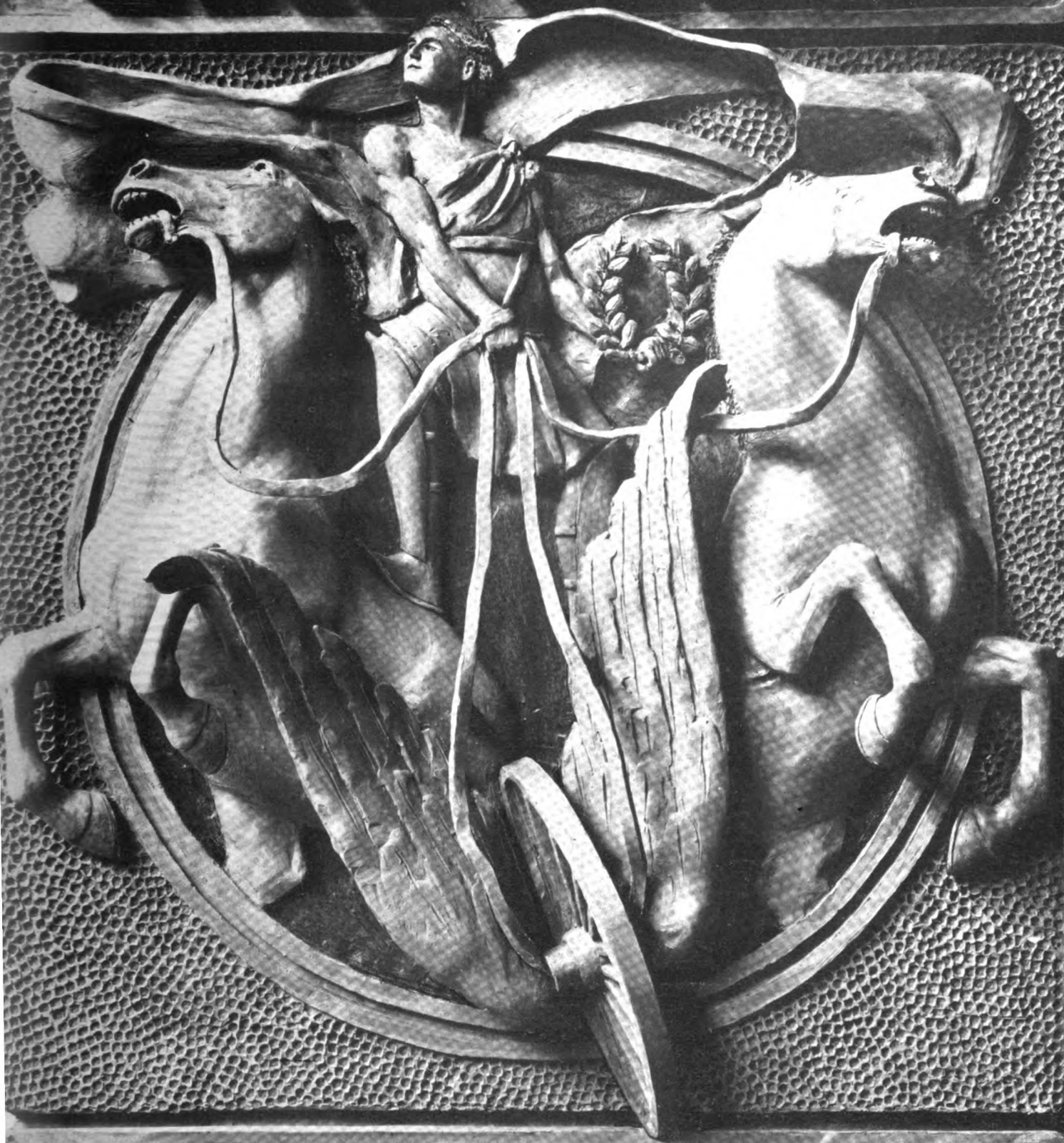
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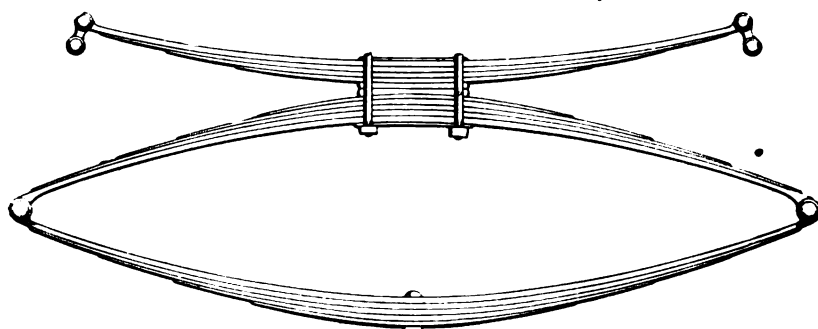
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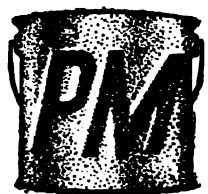
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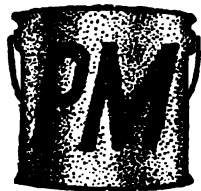
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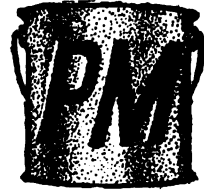
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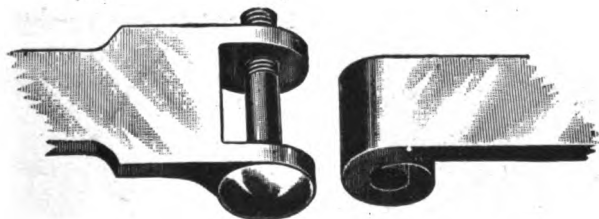
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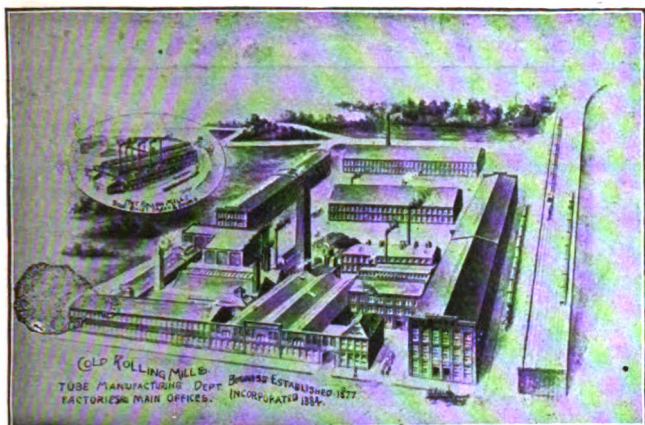
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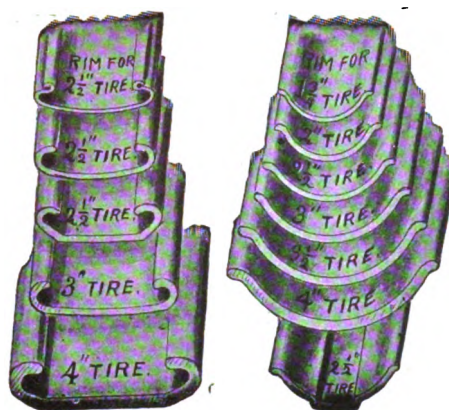
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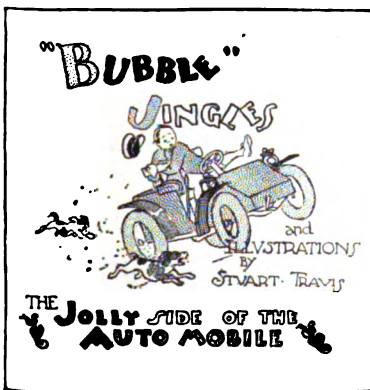
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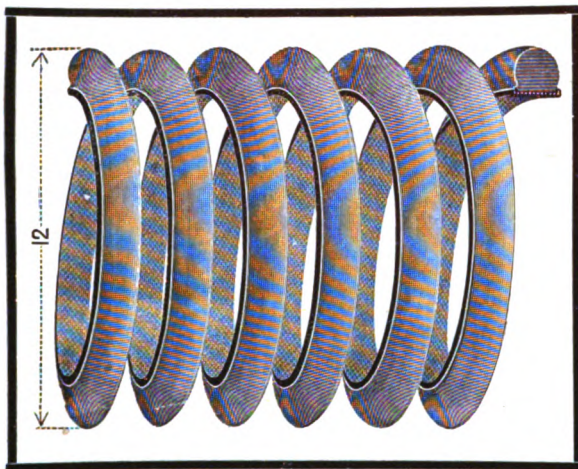
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You will be free from such annoyances, and will have a tire that is superior at every point to the old-style internal wire tire. A tire that you can rely upon to give satisfaction in every case.



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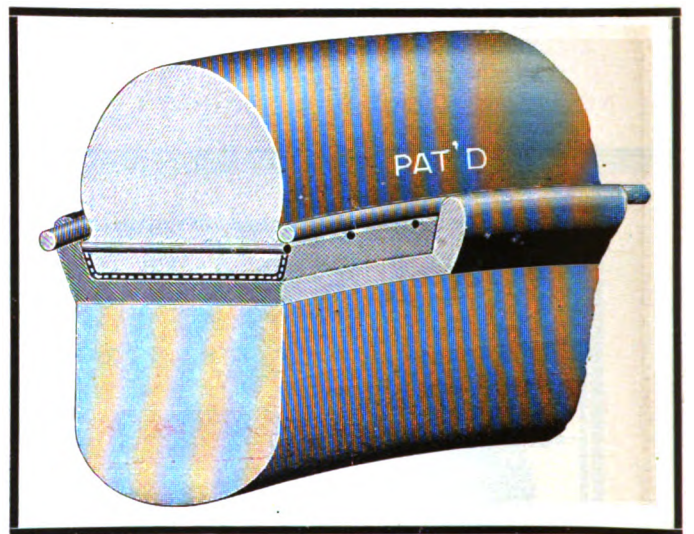
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Held solid in channel at proper place.

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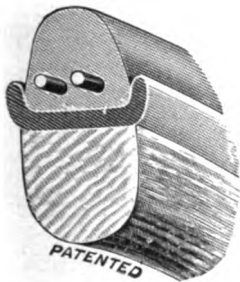
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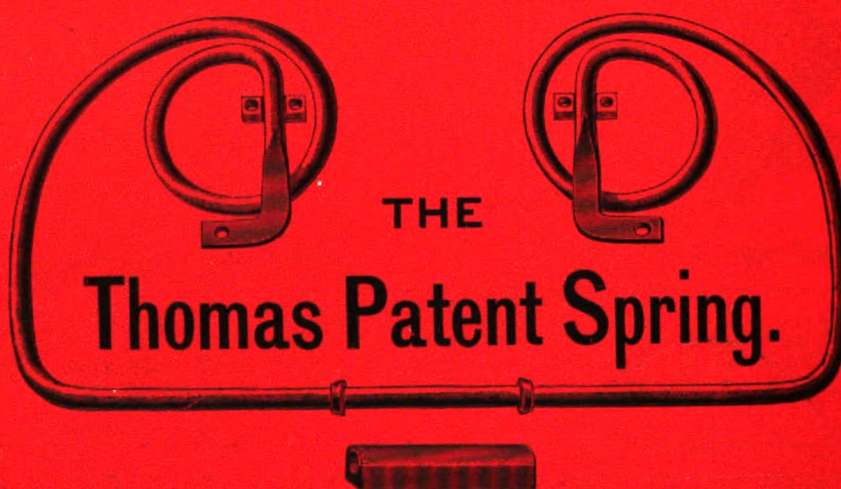
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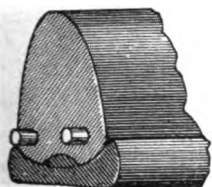
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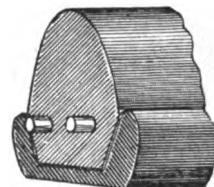
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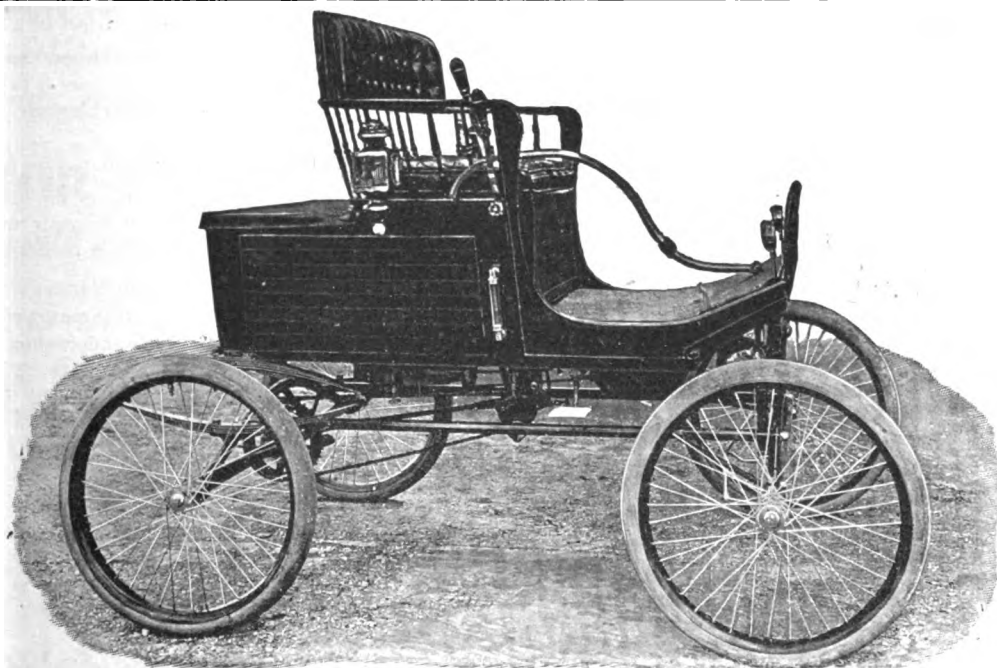


The "Old Style" Rubber Tire.

put a rubber tire on, or a novice at the work, can understand it.

Therefore, on account of its fine selected stock, and increased wearing capacity, it is cheaper. It is now being made, and will shortly be ready for the Spring trade. Give it a trial and you will always want it. SEND FOR BOOKLET to

SOUTHERN RUBBER TIRE CO., Knoxville, Tenn.
Bloomfield, N. J.



IN recognition of the importance of the industry established by The "Mobile" Company of America at Kingsland-Point-on-the-Hudson, the New York Central & Hudson River Railroad has established a station at the factory of The "Mobile" Company with a service of twenty-five trains a day.

The original Philipse Manor, two hundred and twenty years old, still stands on the company's property, and the railroad company has appropriately, in view of its historical and literary associations, given this name to the station. The run from the Grand Central Station in New York is one hour. The manor house and old mill and Sleepy Hollow are part of the company's property, connected by the Headless Horseman's Bridge. The old Dutch Church, and Washington Irving's grave and the monument marking the spot where André was captured, are in the immediate vicinity. When you visit New York, you will find a trip to the factory of

THE "MOBILE" COMPANY OF AMERICA

quite worth a half day's outing. Kingsland Point itself is considered to be the most beautiful section of the Hudson. The visitor is looked after by The "Mobile" Company's corps of demonstrators, taken for a ride in a horseless carriage, and shown all the different processes which enter into the fifteen departments required to manufacture a horseless carriage. He may inspect both quality of material and workmanship, see the new carriages tested as they are taken from the works one after another, and have every opportunity to satisfy himself of the excellence of the carriage in every particular. Price, \$750 Complete.

THE "MOBILE" COMPANY OF AMERICA, Philipse Manor Station, Tarrytown, N. Y.



**STRAIGHTFORWARD,
UPRIGHT, CLEAR CUT**

Business methods, coupled with Experience gained in the tire making business since its inception, is the explanation of our success.

IT SHOULD APPEAL TO YOU.

If on all this earth there is anything really beyond doubt or discussion, it is, that

HARTFORD SINGLE TUBE TIRES
AND
DUNLOP DETACHABLE TIRES

are the
STANDARD TIRES OF THEIR RESPECTIVE TYPES.

The fact is so well and widely known and so generally acknowledged that to argue the point is to confess ourself lacking in information

Can you afford to use the so-called "cheap" tires? Will the buyer take your word for the superiority of the other parts when right before your eyes is the evidence of your anxiety to force upon him something that he knows is inferior?

It is a mistake to think the buyer will blame the tire maker. He will hold responsible the dealer or manufacturer who induced him to take the cheap inferior tire by their endorsement of it.

**YOU TAKE NO CHANCES IN USING
"HARTFORDS" OR "DUNLOPS".**

THE HARTFORD RUBBER WORKS CO.
HARTFORD, CONN.

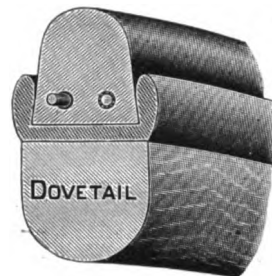
BRANCH HOUSES	NEW YORK	CLEVELAND
	BOSTON	DETROIT
	PHILADELPHIA	CHICAGO
	WASHINGTON	MINNEAPOLIS
	BUFFALO	DENVER
	SAN FRANCISCO	

The Hub

THE NUMBER OF



Pat. July 23, 1895.



Patented.

replaced during the season of 1900-1 represented only 17/100 of 1% of the total number manufactured during the same period. This unparalleled record—one that has not been even approached by any other tire—fully confirms and justifies the candid conclusion of buyers and users that

VICTOR TIRES ARE :::: THE BEST ON EARTH.

A common saying among our competitors is "Once a customer of the Victor, always a customer of the Victor." This is a true declaration. Our old licensees generally are renewing their engagements with us, and about 25% of our contracts for the ensuing season are with new customers—good people who last year handled tires of inferior grades and who propose to profit by experience.

Our shipments to customers during the months of November and December, 1901, were over 50% in excess of those during the same months of 1900. Cause: best tires; quickest, simplest and surest device for applying them; reasonable prices; punctual service and fair treatment.

VICTOR TIRES DO NOT INFRINGE ANY PATENT,
and we will protect our customers from litigation for alleged infringement.

You will observe that this ad. is characterized not by ambiguous verbiage, but by frank, honest statements; cold, stern facts.

Moral: Get into the band wagon that has VICTOR TIRES on.

The Victor Rubber Tire Co.,

SPRINGFIELD, OHIO.

BRANCHES:

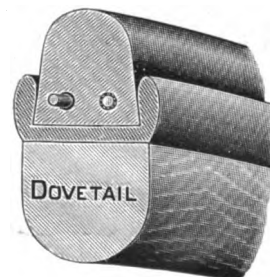
1769 Broadway, New York City.

27-29 Beverly St., Boston, Mass.

1428 Wabash Ave., Chicago, Ill.

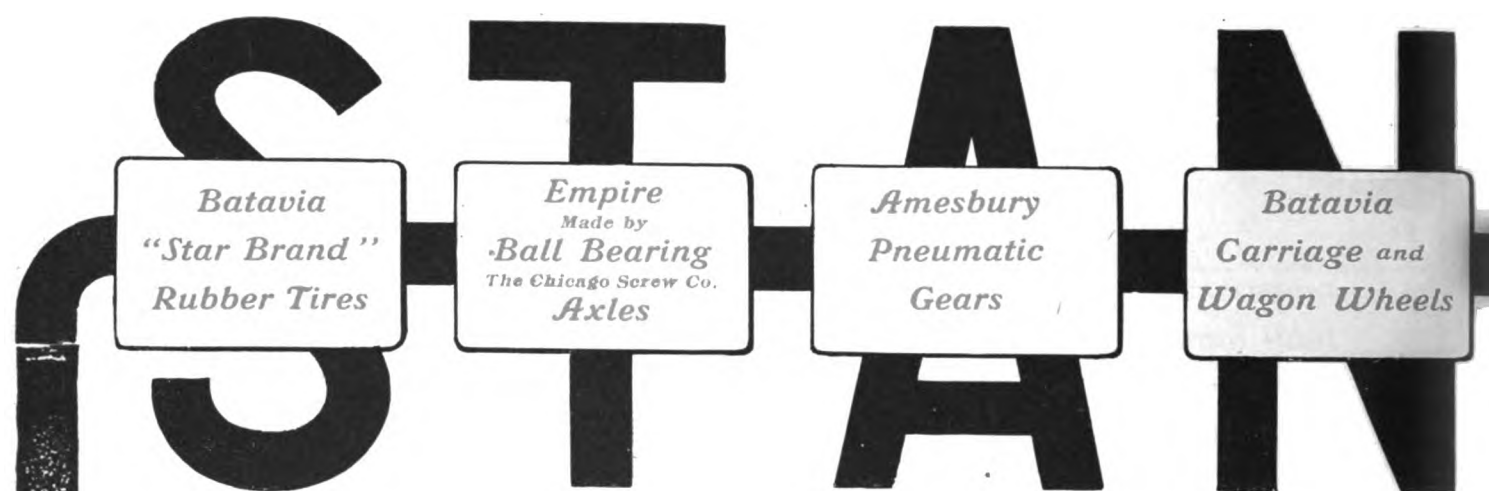


Pat. July 23, 1895.



Patented.

Please mention "The Hub" when you write.



Batavia
"Star Brand"
Rubber Tires

Empire
 Made by
Ball Bearing
The Chicago Screw Co.
Axles

Amesbury
Pneumatic
Gears

Batavia
Carriage and
Wagon Wheels

ANTI-FRICTION

THIS COMPANY
 IS OWNED, CONTROLLED
 AND OPERATED BY THE
 CONCERNS WHO
 MANUFACTURE THE
 GOODS WE SELL.

S. A-F. E. CO.

50 BROADWAY N. Y.

FACTORIES—

CHICAGO ILL.

BATAVIA N. Y.

WILKES-BARRE PA.

AMESBURY MASS.

BARBERTON, OHIO.

D A R D

*Beasley
Truss
Elastic
Construction.
Tires*

*Drop Forged
Axles,
Fifth Wheels,
Etc.*

*Cushion and
Pneumatic
Tires*

*Sheldon
Axles and
Springs*

EQUIPMENT CO.

Mr. Carriage Manufacturer:-

Our representatives, Messrs. A. C. Farnsworth, W. W. Leavenworth, J. S. Beatty, Newton Gresser, R. L. Kingston, and A. J. Rust, are out after your orders. If they did not secure them at the Tri-State Exhibition, you will receive a call in the near future. They are authorized to quote you prices that should secure your business.

We desire to particularly call your attention to our latest improved machine for applying rubber tires, and also to the advantages to be gained from the use of "Star" Brand tires.

Respectfully,

S. A-F. E. Co.

Address all communications to S.A-F.E.Co. 50 Broadway, New York.



INDIA RUBBER TIRES




WE have reached the acme of perfection in making solid, cushion and pneumatic carriage and automobile tires. Our many customers attest to this and fully appreciate its importance.

We have the quality and the price is right for high grade goods.

We were one of the first rubber concerns in the country to manufacture carriage tires. Why not profit by our experience.

Your correspondence is solicited.

THE INDIA RUBBER CO.

AKRON, OHIO.

KOKOMO

TIRES

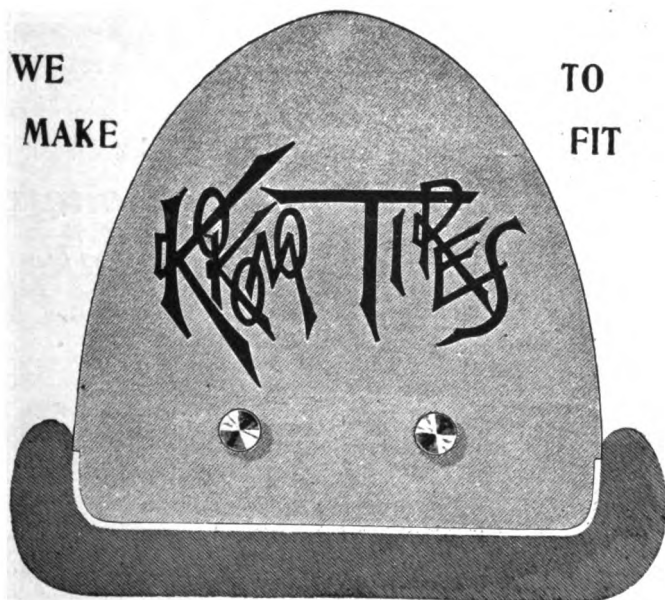
ONE QUALITY ONLY

• AND •

THAT THE BEST

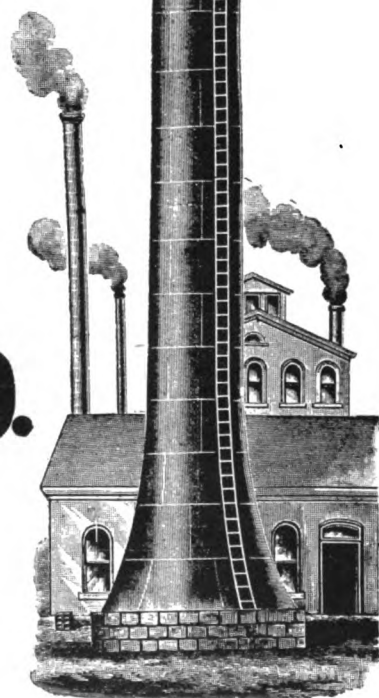
WE
MAKE

TO
FIT



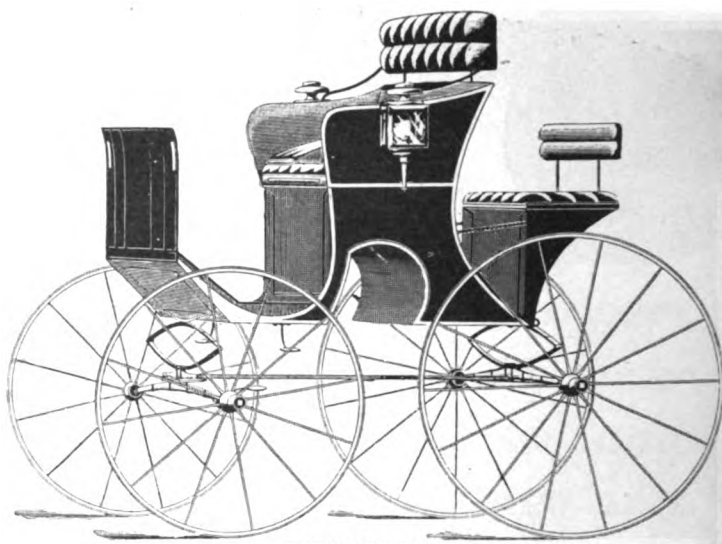
KOKOMORUBBERCO.

KOKOMO, INDIANA.



Please mention "The Hub" when you write.

IF YOU WANT MONEY

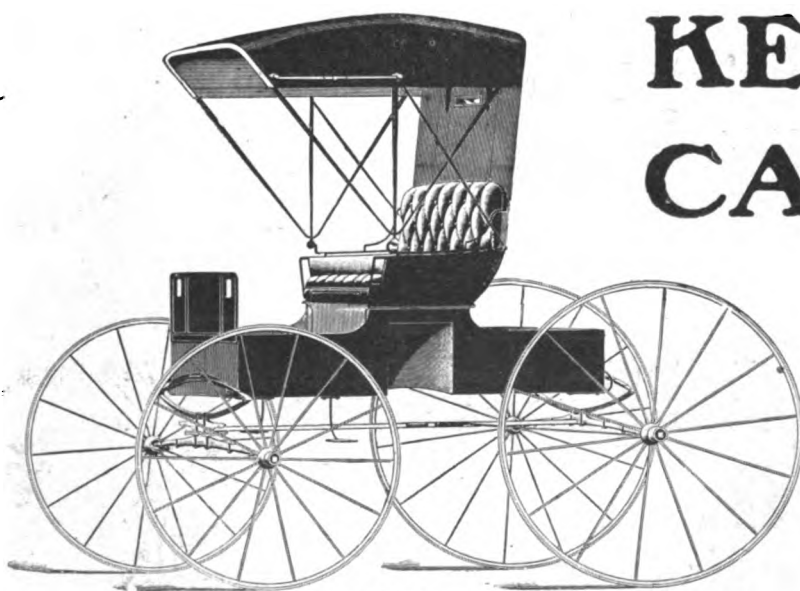


BONNY DIRECT.

Handle a line of Novelties something different, you know, from that of your competitor. In other words handle our line of

"THOROUGHBREDS"

There are thirty-three of them and every one a winner. We stand ready to prove every claim we make for them, and we claim the earth.

CAPTOR.
Cut-Under Buggy.

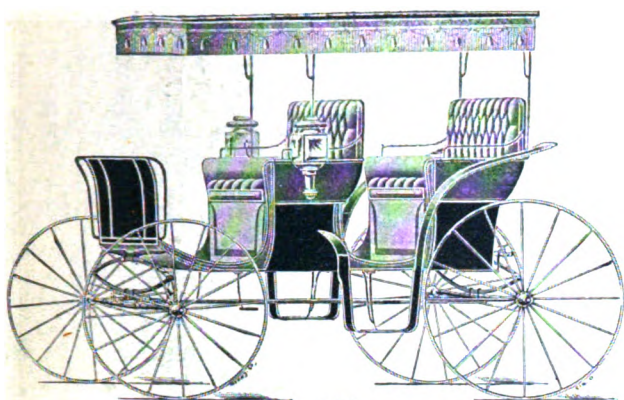
KEYSTONE CARRIAGE CO.,

Cincinnati, O.

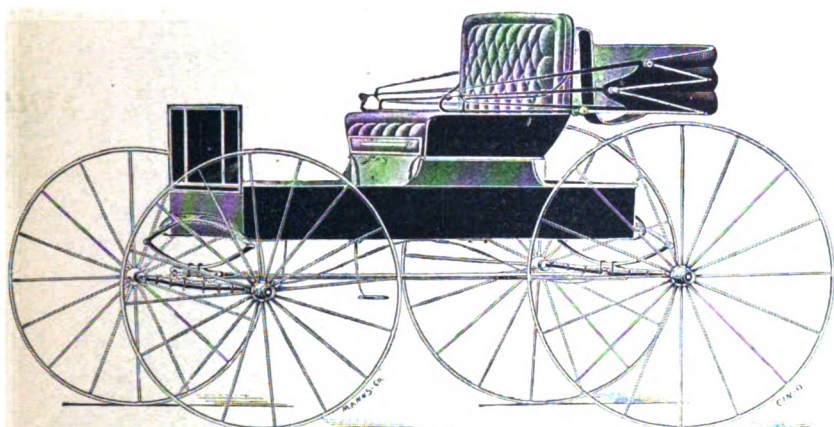
SEND FOR CATALOG AND
COLOR PLATES.

Please mention "The Hub" when you write.

PRINCE HENRY and "THE BRIGHTON"



No. 282.



No. 312.

will be the whole show when the former visits the Queen City.

He will conclude that we build buggies "To beat the Dutch," before we get through with him.

We didn't make much of a spread at our "launching" six years ago, but since that time we have built more buggies on the quiet than any six-year-old factory on earth.

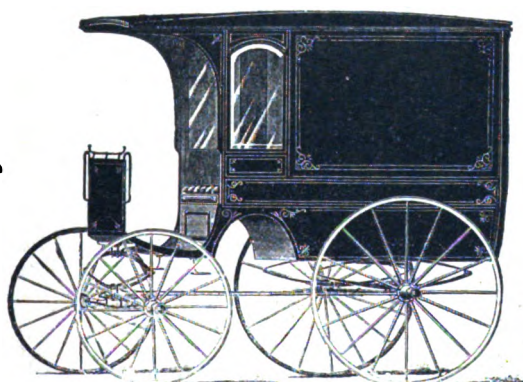
Send us a postal card and we will send you our new catalogue.

THE BRIGHTON BUGGY CO.,

CINCINNATI.

BEST ... IN THE MARKET

THE QUALITY OF
OUR WORK IS
GUARANTEED



No. 365.

WE BUILD HONEST WAGONS AT HONEST PRICES

Write for Our Illustrated Form
N. Catalogue and Price List.

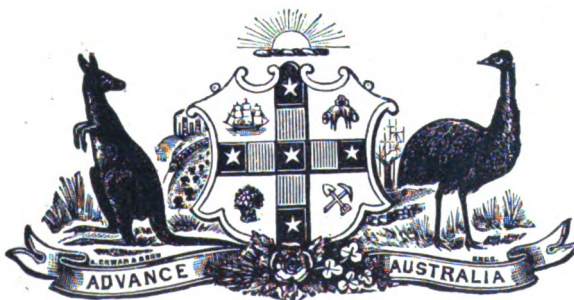
THE ... O. ARMLEDER CO.

CINCINNATI, OHIO

The Australasian Coachbuilder and Wheelwright.

A Monthly Illustrated Technical Journal
circulating among Coachbuilders and Wheel-
wrights of the Australian Commonwealth,
New Zealand and South Africa.

The Medium for advertising to Coach-
builders and Wheelwrights in these parts.



Advertising rates and other information
furnished on application.

Annual subscription \$3.60 in advance,
post prepaid to any part of the world.

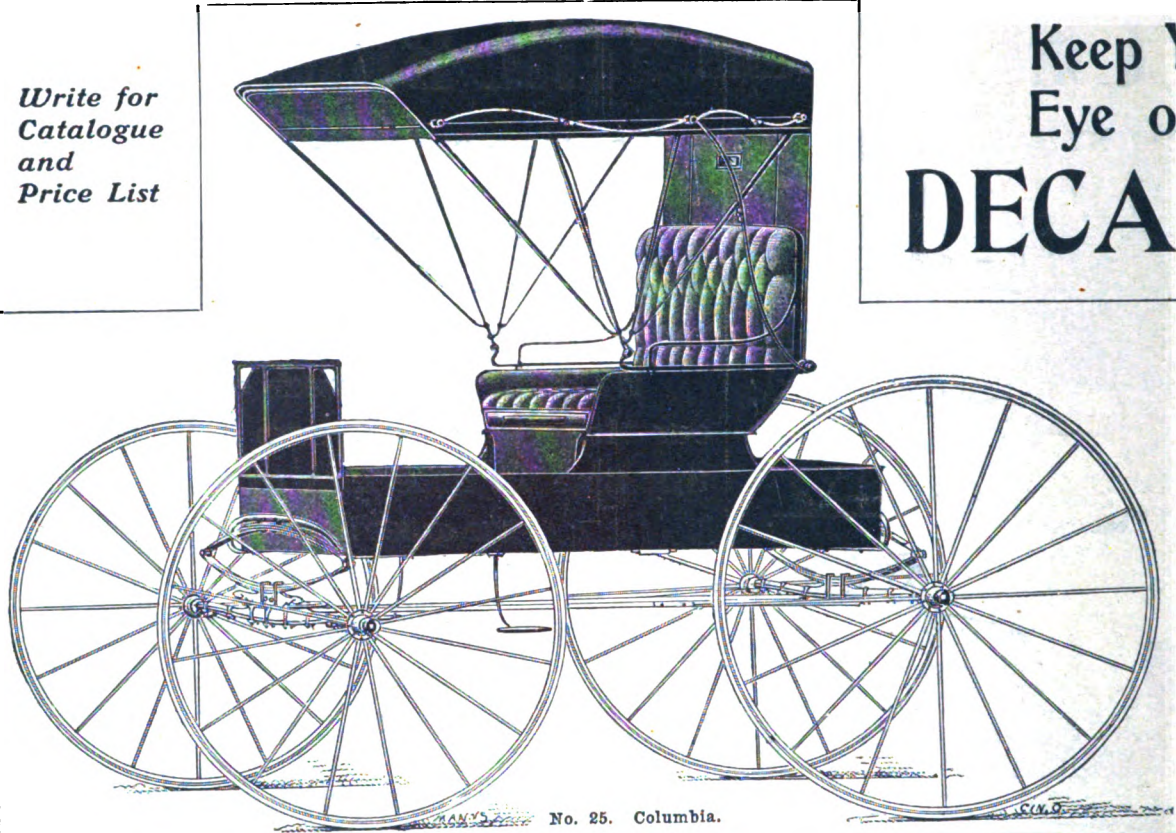
J. E. BISHOP & CO.,

65 Market Street

SYDNEY, N. S. W., AUSTRALIA

Please mention "The Hub" when you write.

Write for
Catalogue
and
Price List



No. 25. Columbia.

Keep Your
Eye on ..
DECATUR

*Get in
Line
With
the
Decatur
Buggy
Co.*

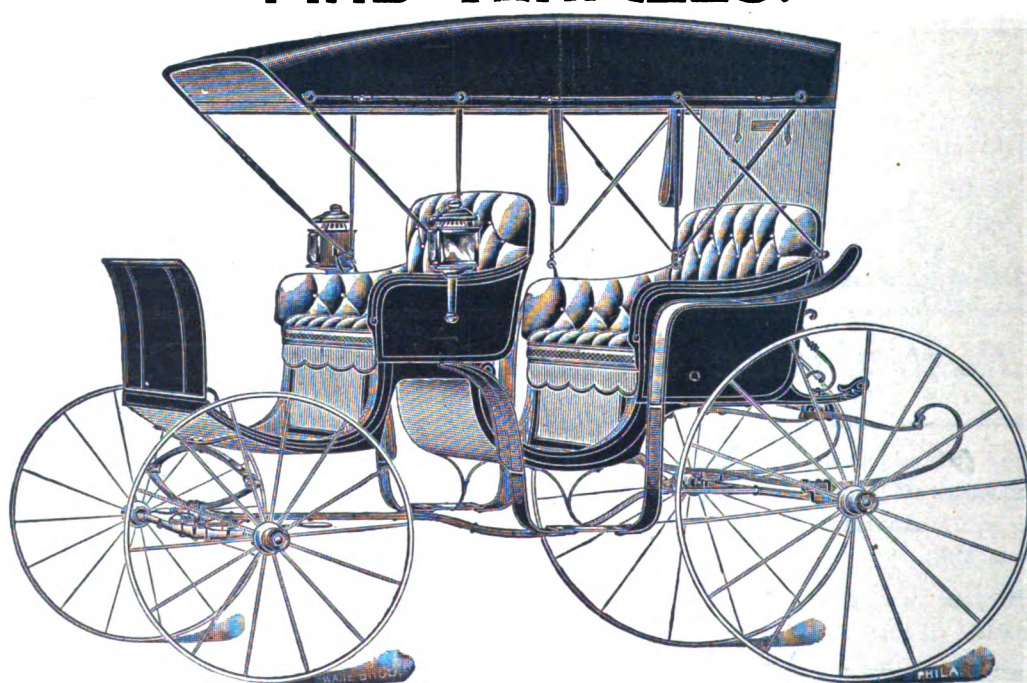
*One of
the
Winners at
Cincinnati*

DECATUR BUGGY CO.

MIDDLETOWN, OHIO.

BLEES-McVICKER CARRIAGE CO.,
Manufacturers
of **FINE VEHICLES.**

●
STYLE,
QUALITY,
WORKMAN-
SHIP.
●



No. 140 CARRIAGE.

●
It will
Pay You to
Investigate
●
WRITE FOR
CATALOGUE.
●

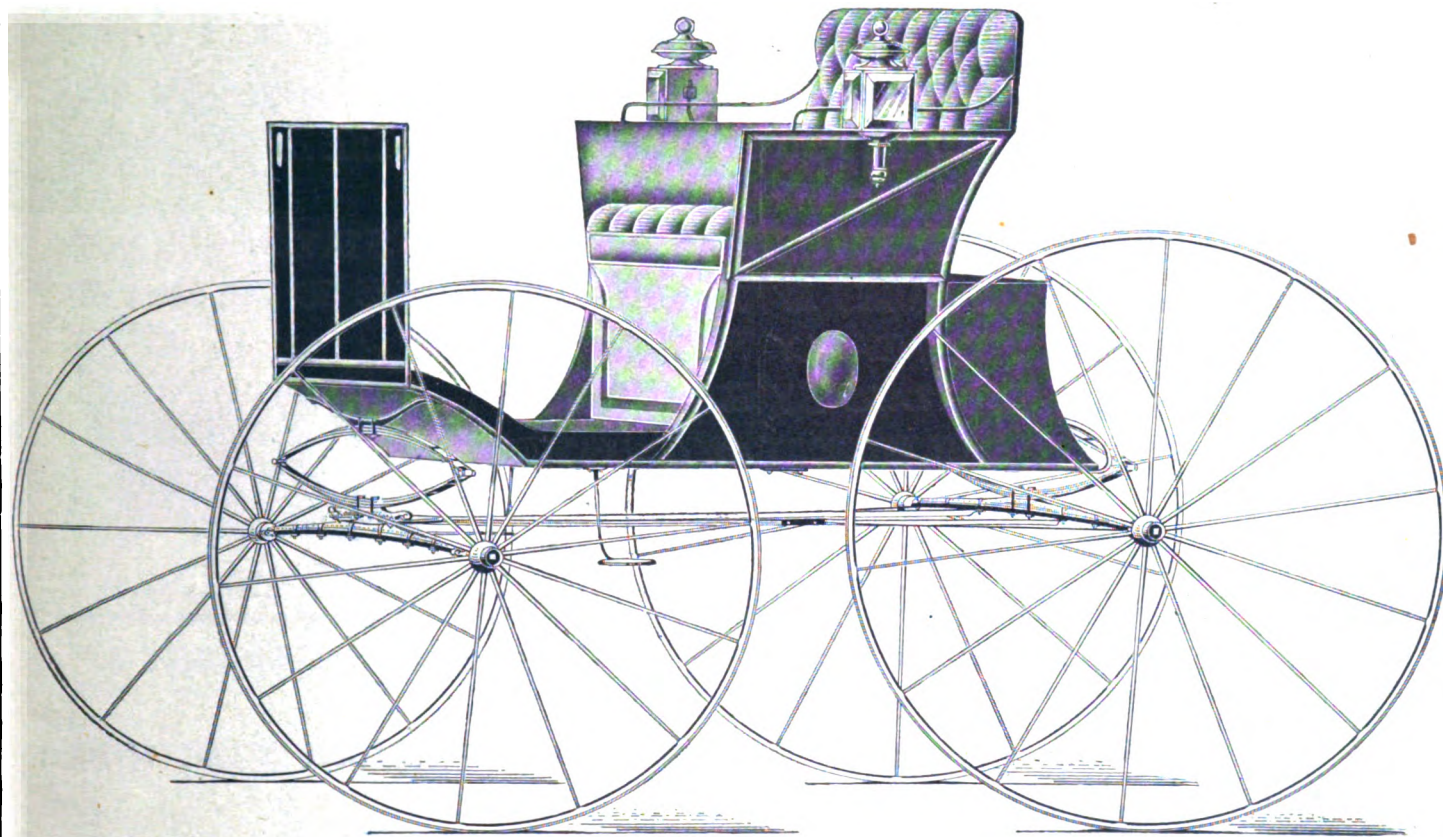
MAGON, MISSOURI.

Please mention "The Hub" when you write.

PARRY MFG. CO.

INDIANAPOLIS, IND.

PRESENTS THE MOST VARIED AND COMPLETE LINE OF



GARLAND.

Buggies and Surreys

EVER OFFERED TO THE TRADE.

Do all buggies look alike to you?

In *some* respects all vehicles resemble each other, but there is a certain individuality—an indefinable something—about Parry Buggies which pleases the eye and compels attention.

The graceful lines on which Parry Buggies are built make them comfortable and satisfying. There is an absence of that "jarring" sensation both to mind and body.

Notwithstanding the painstaking care exercised in matters of design and finish, quality and durability are never lost sight of.

The choicest products of mine and forest enter into their construction, and the skill of the trained mechanic displays itself on every hand.

The dealer who buys Parry Buggies is happy in the serene consciousness that he has received full value for every cent he has invested.

He also knows that when the goods are sold they *stay sold*.

The user, if he does not already know, soon learns that he has bought a *buggy* (not a promise) and when his children's children shall have "seen its finish," they'll buy another like it.

That's all.

Up-to-date Designs.

Modern Improvements.

Elegant Finish.

Superior Quality.

Lowest Prices.

.... WRITE US



WATERLOO SLEIGH POINTERS

BEST VALUES

GOOD STYLES

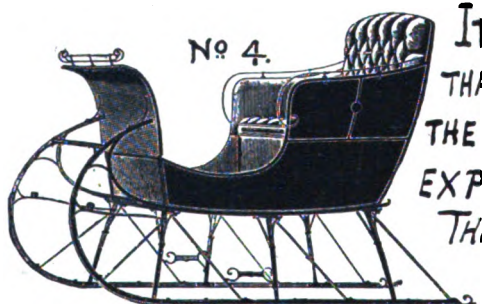
FINE FINISH-DURABILITY

WE ARE OFFERING DISCRIMINATING BUYERS THIS SEASON THE BEST SLEIGH VALUES TO BE FOUND IN THE SLEIGH MARKETS OF THE WORLD.

WE REALIZE THAT THIS IS A SWEEPING STATEMENT, BUT THE CONFIDENCE WE HAVE GAINED BY SELLING OUR SLEIGHS TO THE SAME TRADE YEAR AFTER YEAR FOR NEARLY TWENTY YEARS MAKES US WILLING TO STAND BY THE ABSOLUTE TRUTHFULNESS OF THE SAME WITHOUT ANY QUALIFICATIONS WHATEVER.

WE HAVE ON OUR LIST AS BUYERS OF OUR SLEIGHS A MAJORITY OF THE LEADING DEALERS OF THIS COUNTRY AND THEY TELL^{US} THAT IN THEIR EXPERIENCE A DISSATISFIED USER OF A WATERLOO SLEIGH IS "A VERY RARE BIRD."

IT DOES NOT "HAPPEN SO" THAT OUR SLEIGHS LOOK RIGHT, RIDE RIGHT AND STAY RIGHT.



IT IS BECAUSE WE BUILD THEM ON THE OLDFASHIONED PRINCIPLE THAT IT PAYS US TO MAKE THEM RIGHT, COMBINED WITH THE KNOWLEDGE, ACQUIRED BY NEARLY TWENTY YEARS EXPERIENCE, OF HOW TO MAKE THEM RIGHT.

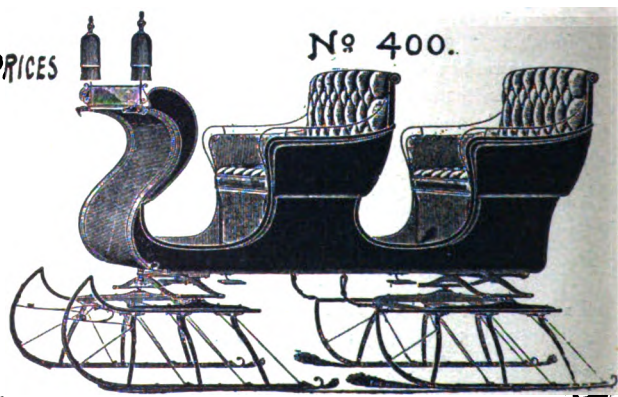
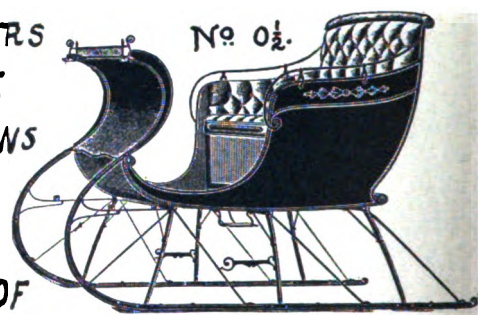
THERE IS NOTHING OLDFASHIONED ABOUT THE SLEIGHS EXCEPT THE OLDFASHIONED HONESTY OF THE MATERIAL AND THE WORKMANSHIP—ASIDE FROM THIS THEY ARE ENTIRELY UP-TO-DATE.

IN THE QUALITIES OF STYLE, FINISH AND PROPORTION THEY STAND FIRST AND IN THE MATTER OF EASY RIDING AND DURABILITY THEY RANK WITH "THE WONDERFUL ONE, HOSS SHAY"

CATALOGUE ON REQUEST AND LOWEST PRICES
QUOTED BONA-FIDE DEALERS

WATERLOO WAGON COMPANY LIMITED,

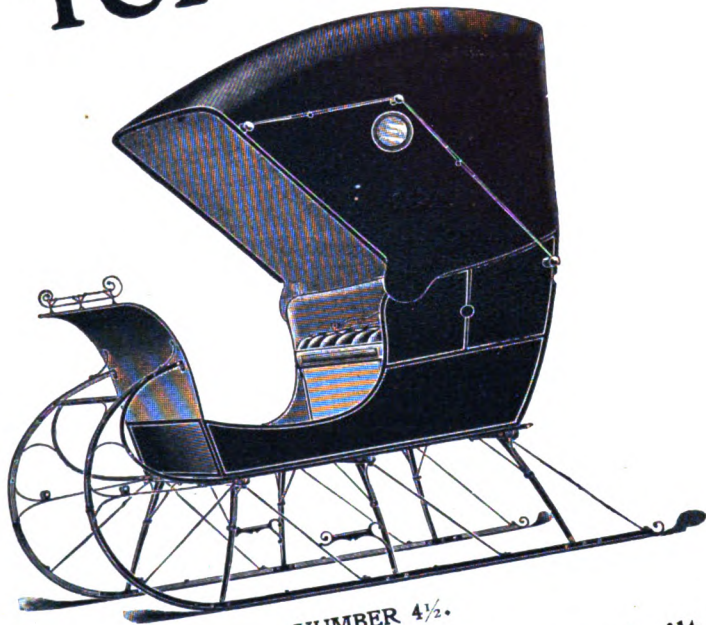
WATERLOO, SENECA CO., N.Y., U.S.A.



WATERLOO

WAGON
COMPANY
LTD.,

OUR TOP COMFORT



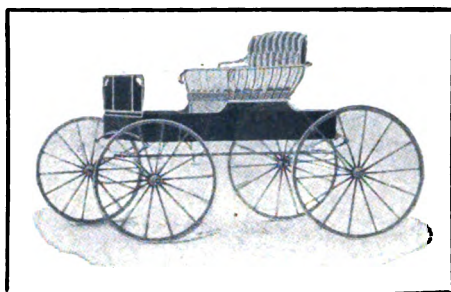
NUMBER 4 1/2.

We show above one of the best Top Sleighs built for the trade. Every detail of material, construction, comfort and safety is up to the highest standard of custom sleigh building. Our line of sleighs embrace all the desirable styles and grades from a reliable medium priced Portland to the best examples of the sleigh builder's art. Catalogue and price list mailed to dealers, in territory not already assigned, on request.

LATE STYLES

FINE FINISH

SENECA CO.
WATERLOO
N.Y.



OUR "KAT" IS NOW
IN THE PRINTERS' HANDS.
LET US SEND YOU ONE.

STOP RIGHT NOW AND
DROP US A LINE.

We will be at the CHICAGO AUTOMOBILE
SHOW, March 1 to 8.

National Vehicle Company

E. 22nd St. and Monon. R. R.

INDIANAPOLIS, IND.

TAKE STEPS

TO SECURE OUR LINE

IT'S A TRADE GETTER.

NEW STYLES IN

Stanhopes

Surreys

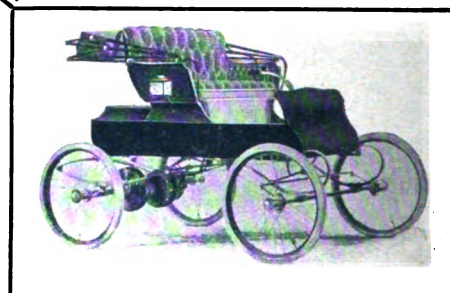
Buggies

Runabouts

Phaetons

Bike Wagons

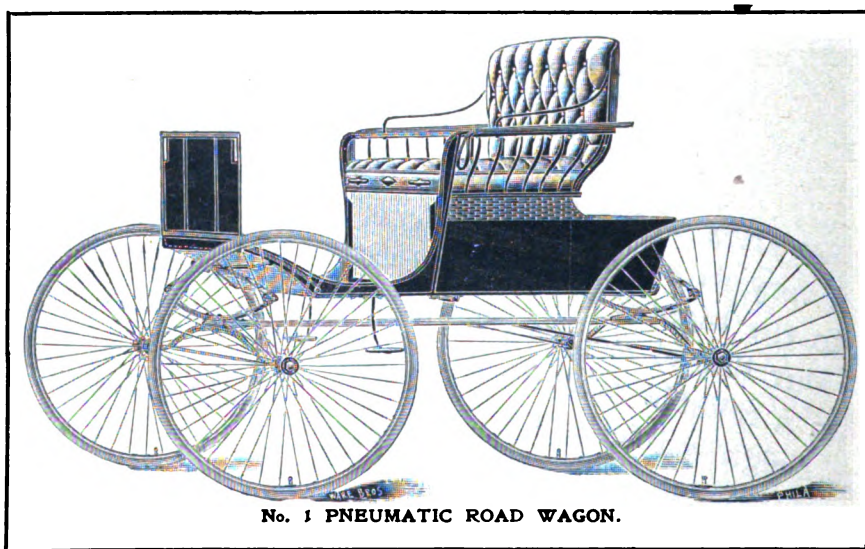
**Automobiles
and Carriages**



You May Think

*That you don't
need our line
of vehicles in
your business—
that you'll get
just as much
trade if you*

don't sell Excelsior Vehicles. You may THINK that, but you don't know it. You'll never know how much business you miss by not selling Excelsior work. But, if you'll do a bit of investigating you'll convince yourself that our line is a business getter—that it will help your sales. Our work is built that way and can be depended upon. WILL YOU INVESTIGATE?



No. 1 PNEUMATIC ROAD WAGON.

A Neat, Tasty
Job and a
Corking
Good Seller.

Excelsior Carriage Company

WATERTOWN, NEW YORK.

New England Branch: WHITE RIVER JUNCTION, VT.

H. R. MILLER, Manager.



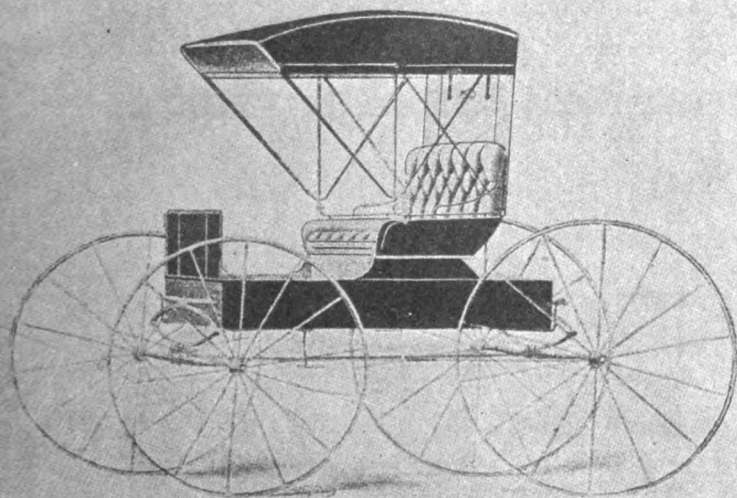
MR. DEALER

That disconsolate look of yours is a disease and we can cure it. Prescription free, medicine furnished at popular prices.

THE RICHLAND VEHICLE CO.

Mansfield, Ohio

❖
Buggies
Surreys
Phaetons
Stanhopes
Runabouts



OUR No. 7-11. WINNER BUGGY



Please mention "The Hub" when you write.



In 15 seconds you can change our No. 110 Top Buggy to one of the handsomest Runabouts you ever saw. For this reason, we call it

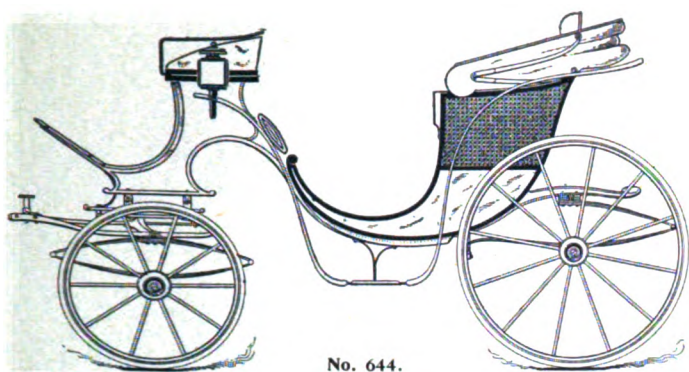
2 IN 1

The Greatest Novelty and Quickest Seller on the market, and a money maker every time.

Sterling Buggy Co.
RUSHVILLE, IND.

Watch this page next month. ➤

Please mention "The Hub" when you write.



No. 644.

ARE YOU LOOKING FOR BUSINESS?
IF YOU ARE, WRITE TO AUBRY AND
GET SOMETHING FRESH FOR THE
SPRING TRADE. ORDER SOME OF OUR

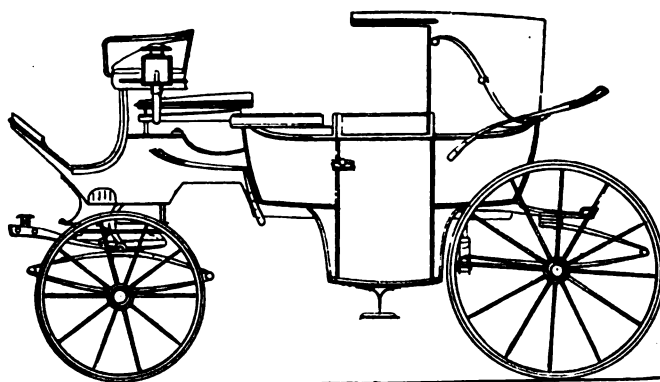
Light Cabriolets and Victorias

THEY ARE THE RIGHT THING, VERY
STYLISH, AND GOOD SELLERS.

ALSO OUR

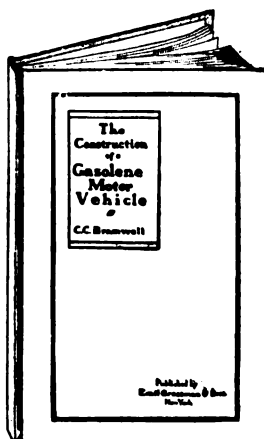
**LANDAUS, COACHES,
BROUGHAMS, HANSOMS,
'BUSSES AND ROCKAWAYS**

ARE ALL FRESH DESIGNS, and BEAUTIES.
That's what PEOPLE ARE LOOKING FOR.



Write for Cuts and Prices at once

Lee J. Aubry Carriage Co., New Haven, Conn.



Are You Keeping Up with the Procession?

In no branch of industry has there been such rapid progress as in the development of the motor vehicle.

All eyes are now focussed on the automobile—all genius directed toward its improvement.

One of the best informed men in this country or abroad on this subject—especially with reference to the use of gasolene as a motive power—is Mr. Clarence C. Bramwell.

In six years of observation, study and experimental work in the United States and on the Continent, he has picked up a wealth of information—a store of knowledge.

He offers you this in the form of a handsomely bound, strikingly illustrated book, a book that is practical, and of absorbing interest.

This book tells the story of "*The Construction of a Gasolene Motor Vehicle*"—tells it in a manner that anyone can understand, and so fully, that anyone with constructive ability can build an automobile, while so numerous are the mechanically correct drawings that even an amateur could not go wrong.

The book is not only valuable to the amateur and professional builder of automobiles, but also to the owner and prospective owner. It will teach them what to do and what not to do—will save them from mistakes that may cost hundreds of dollars. "*The Construction of a Gasolene Motor Vehicle*" will cost Two Dollars, prepaid.

For Sale by THE HUB, 24 Murray St., New York.

A los Señores Carroceros y Comerciantes en Curruajes de las Islas de Cuba y Puerto-Rico.

Fabricamos exclusivamente los vehiculos en blanco (ó sea, sin pintar); y los vendemos sólomente á aquellos que se ocupan de la carroceria.

Somos especialistas: fabricamos un número reducido de modelos y tamaños. y éstos en grandes cantidades.

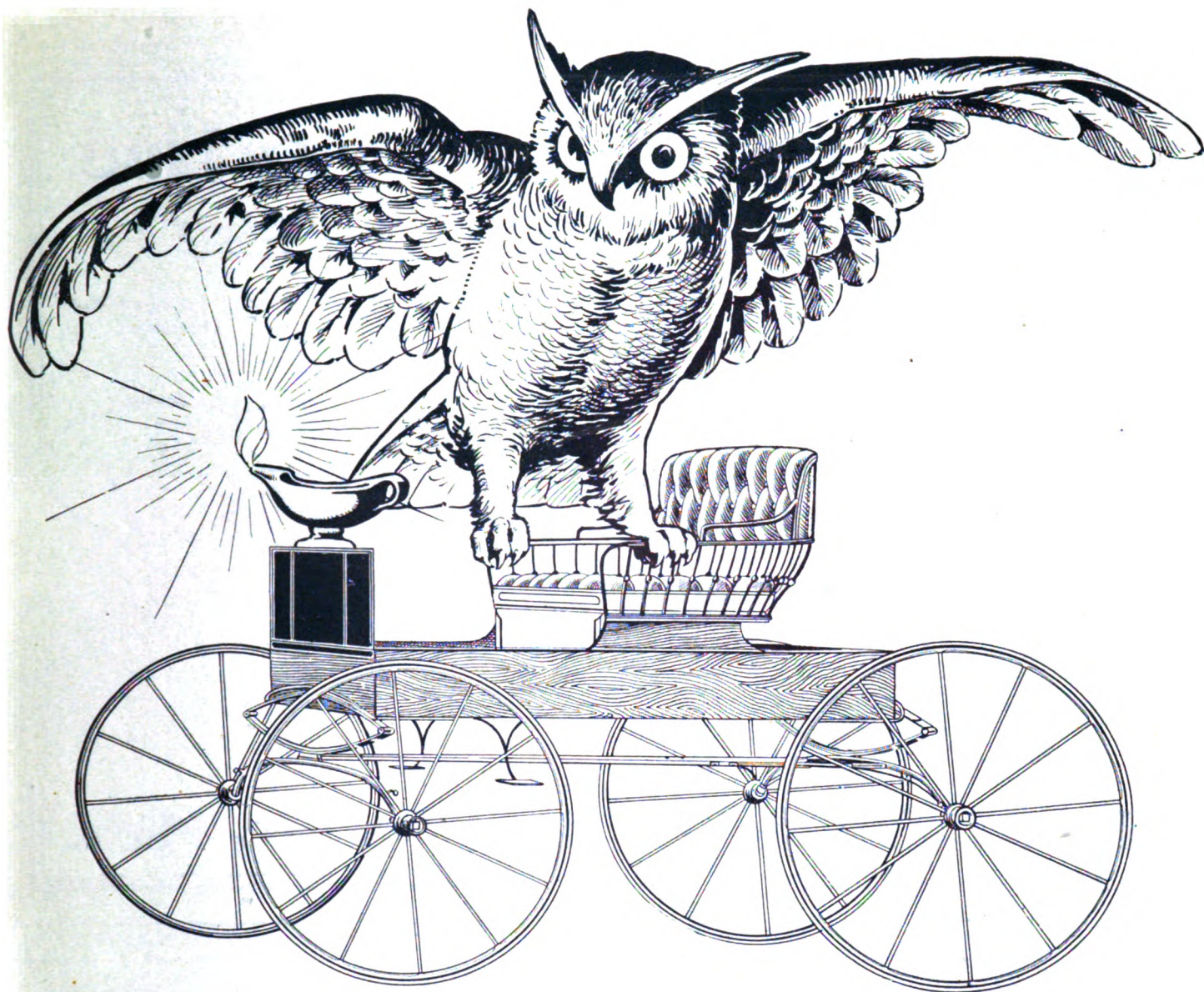
Asi es que podemos vender nuestros productos en precios módicos.

Tendremos mucho gusto en mandar nuestro catálogo, á solicitud, á cuantos lo deseen.

Nuestro catálogo está redactado en Español, Francés, Alemán é Inglés, y encierra informes completos sobre nuestros vehiculos.

Solicitamos la correspondencia.

THE BUFFALO SPRING & GEAR CO.,
BUFFALO, N. Y.
E. U. A.



A FEW PROFITABLE SUGGESTIONS.

WISE BUYERS

are now thinking about the purchase of their Bike Wagons or Runabouts for next Summer.

—that's **Intuitive** Sense

WISE SELLERS

are contented and successful because they are selling Buffalo Work "in the white"—the most serviceable, stylish and artistic representation of carriage perfection.

—that's **Economical** Sense.

THOSE IN THE KINDERGARTEN OF SUCCESS

should take a hint from the above and learn **more** about Buffalo Quality "in the white."

—that's **Dollars** and Cents.

We are producing just what you want—money-makers, **money-makers, MONEY-MAKERS.**

The proof of the pudding is shown by our increased yearly output.

The Buffalo Spring & Gear Company,

BUFFALO N. Y.

Please mention "The Hub" when you write.



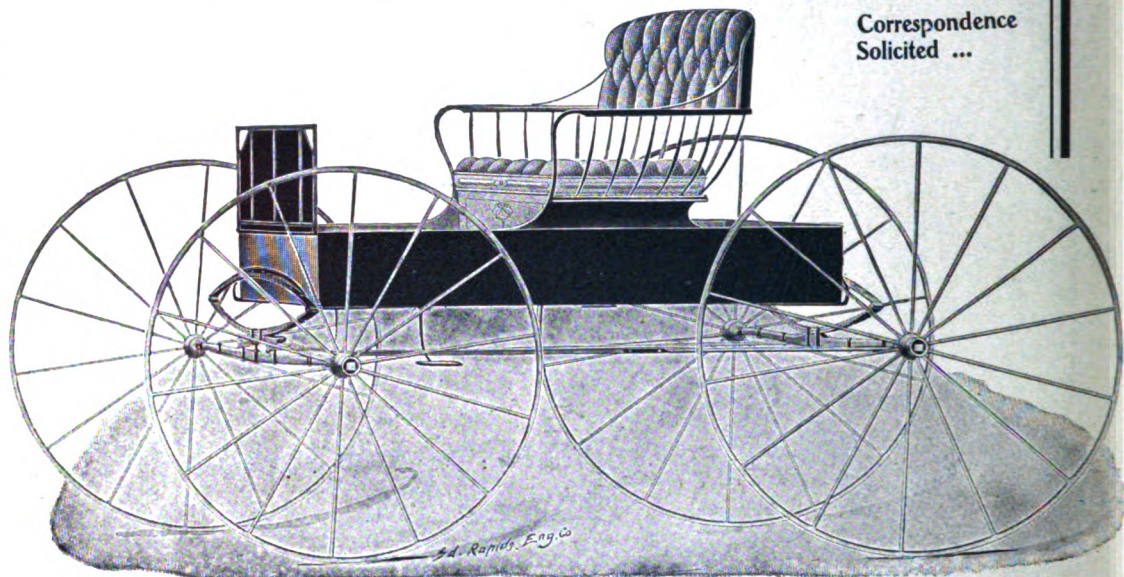
The Western Amesbury Line

Are Leaders in Style and are Money Makers

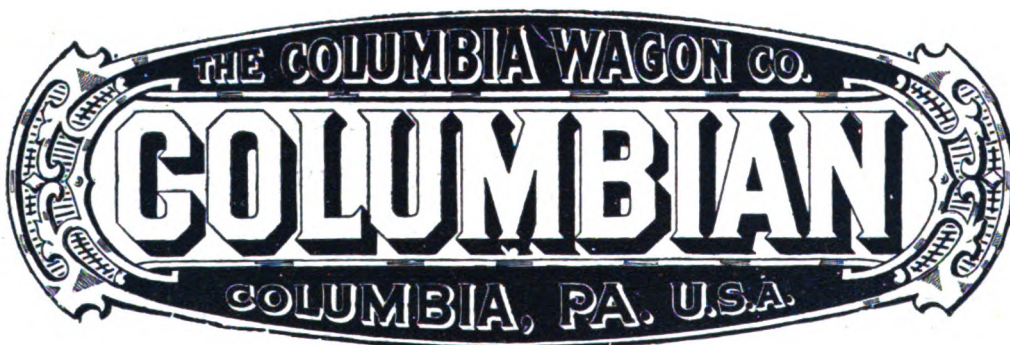
Every dealer
should handle
our.....

Surreys
Doctors' Stanhopes
Buggies
Road Wagons
Runabouts
Business Wagons
Spring Wagons
Etc.

Correspondence
Solicited ...













PONTIAC BUGGY CO, Pontiac, Mich.



*"Next in advantage
to having the thing
to sell, is to have the
convenience to carry it
to the buyer."*

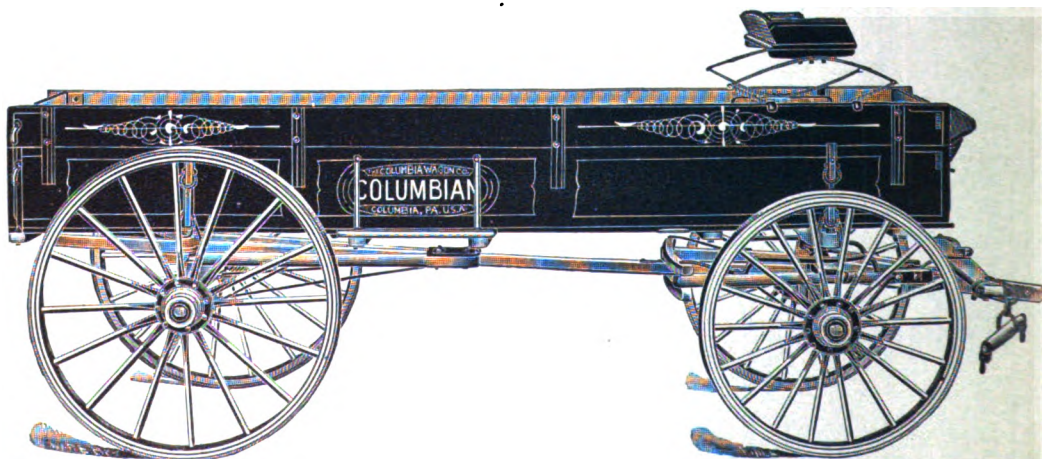
*Wm. McKinley
at Buffalo.*

BY THIS MARK YOU WILL KNOW THEM

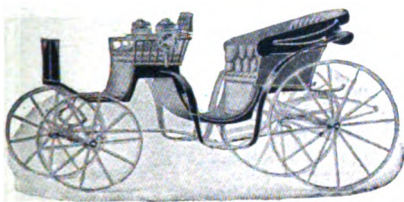
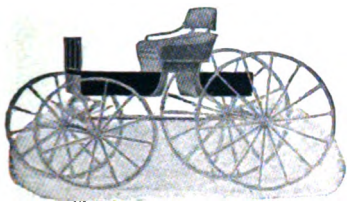
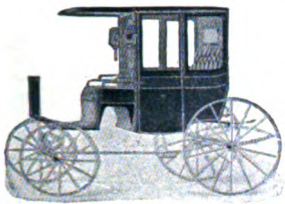
*Our line of Farm and Road Wagons are quick sellers
and the largest money makers on the market*  
*Send for catalogue and prices and do not place your
order before looking us up*        

**Our Sarven
Patent Wheel
Farm Wagon**

*One of the many styles
we are building.*



Please mention "The Hub" when you write.



DO not forget that the H. H. BABCOCK COMPANY is showing many very tasty new things in their *1902 Catalogue*. Avail yourself of a catalogue, which is free. Place your orders early in order to get what you want.

H. H. BABCOCK COMPANY,

CARRIAGE BUILDERS,

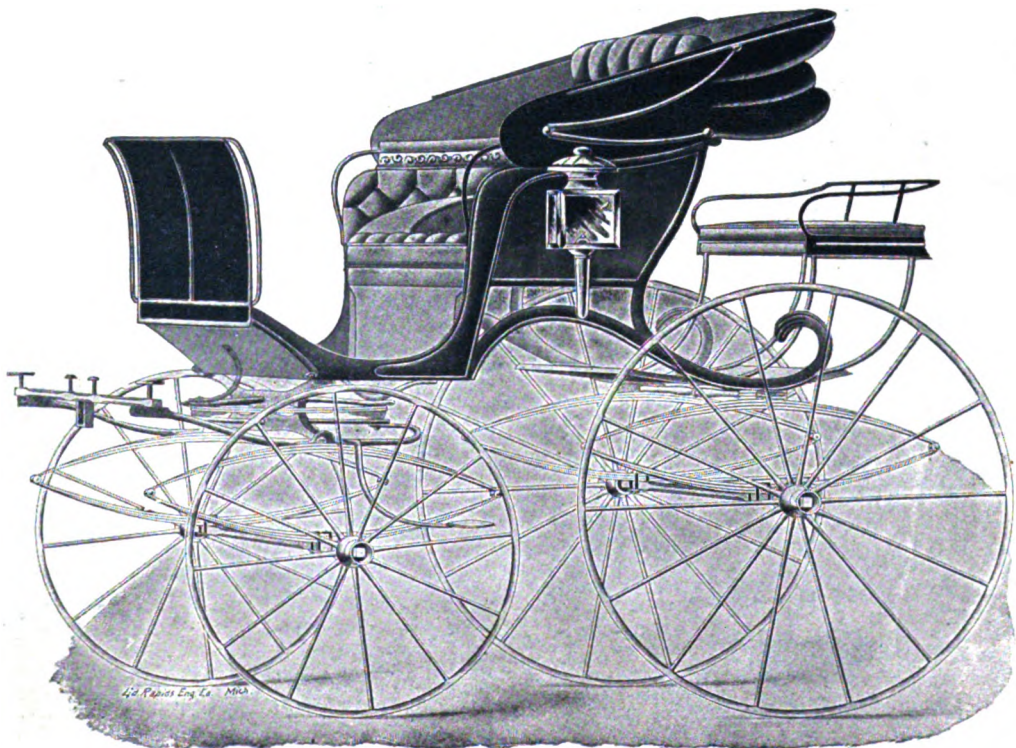
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BALTIMORE BRANCH,
23-25 West Fayette Street.

No. 126 A.

Platform Spider, with
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cut shows one of our
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Catalogue on Application



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**BUILDERS OF HIGH-GRADE CARRIAGES IN THE WHITE,
AMESBURY, MASS.**

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Concord Express Axle

(The Best For Wagons)

Cleveland Axle Manufacturing Co.

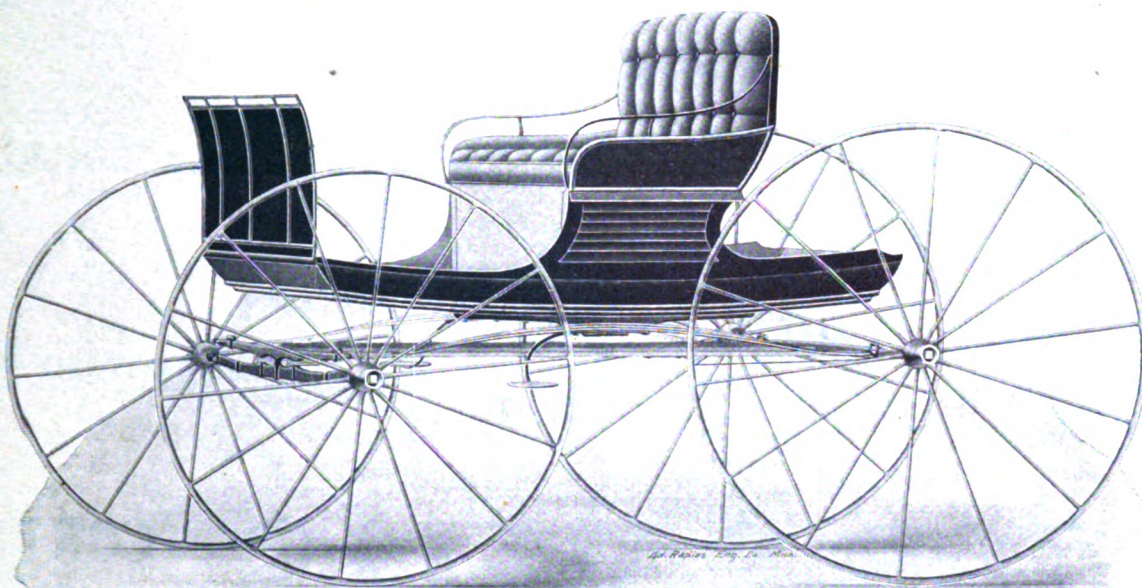
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IF YOU ARE MARRIED

To some other wagon concern it will not be safe for you to order a sample from us unless you believe in divorces, for our line is bound to win you.

A PAIR OF WINNERS



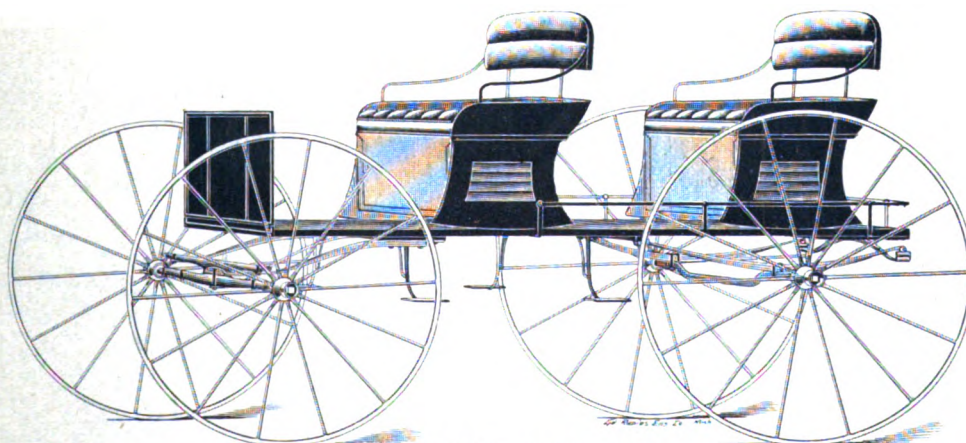
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Our medium weight Concord. We have one heavy job just the thing for showing a pair, and one which is light. Finished in an assortment of bright staple colors.

How about those Park Wagons? We have a line of beauties that are low in price and high in quality and finish. ♡ ♡

Our new catalogue no doubt contains that very job your customer was inquiring for which you did not have—send for it.

Did you notice our line of Stanhopes? They are great money-makers and strictly up-to-date. ♡ ♡ ♡ ♡ ♡



No. 152. TWO SEATED BUCKBOARD.

Rear seat movable and furnished in a variety of colors, with almost any wheel you desire.

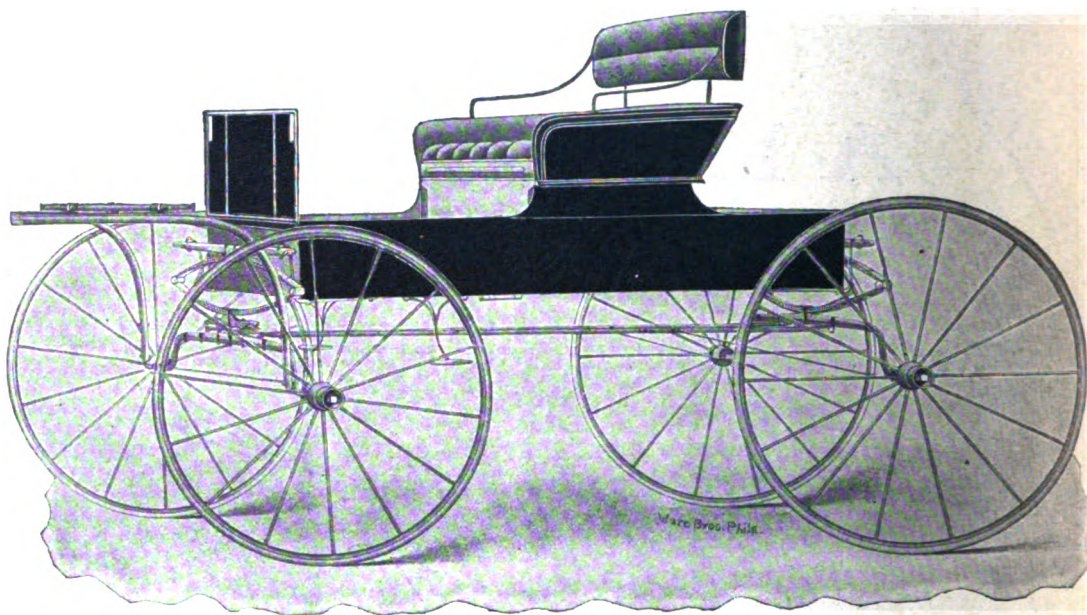
Groton Carriage Works,
GROTON, N. Y.



Please mention "The Hub" when you write.

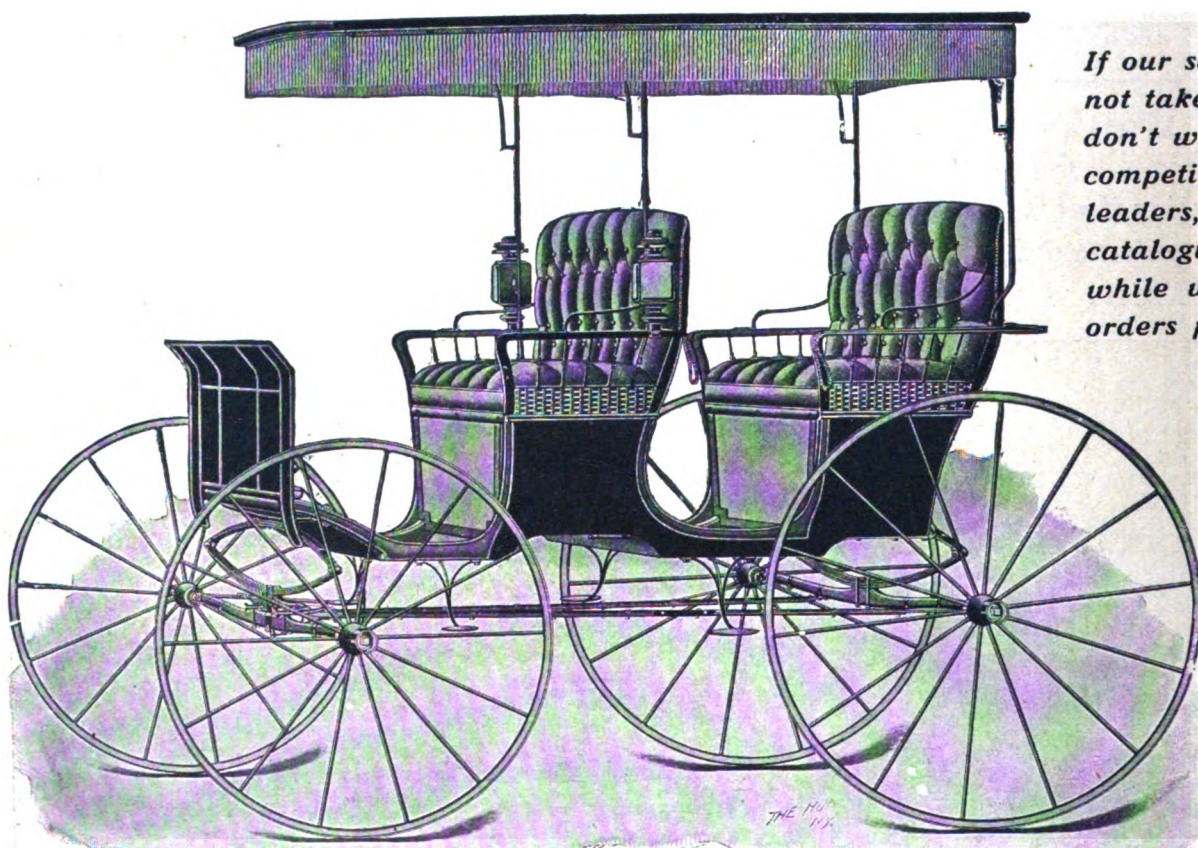
POPULAR STYLES AND PRICES

Our carriages are
sold on their merits
and backed by our
strong guarantee.
Note these two of
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styles.
They are sellers.



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KEATOR & WELLS, CORTLAND, N. Y.

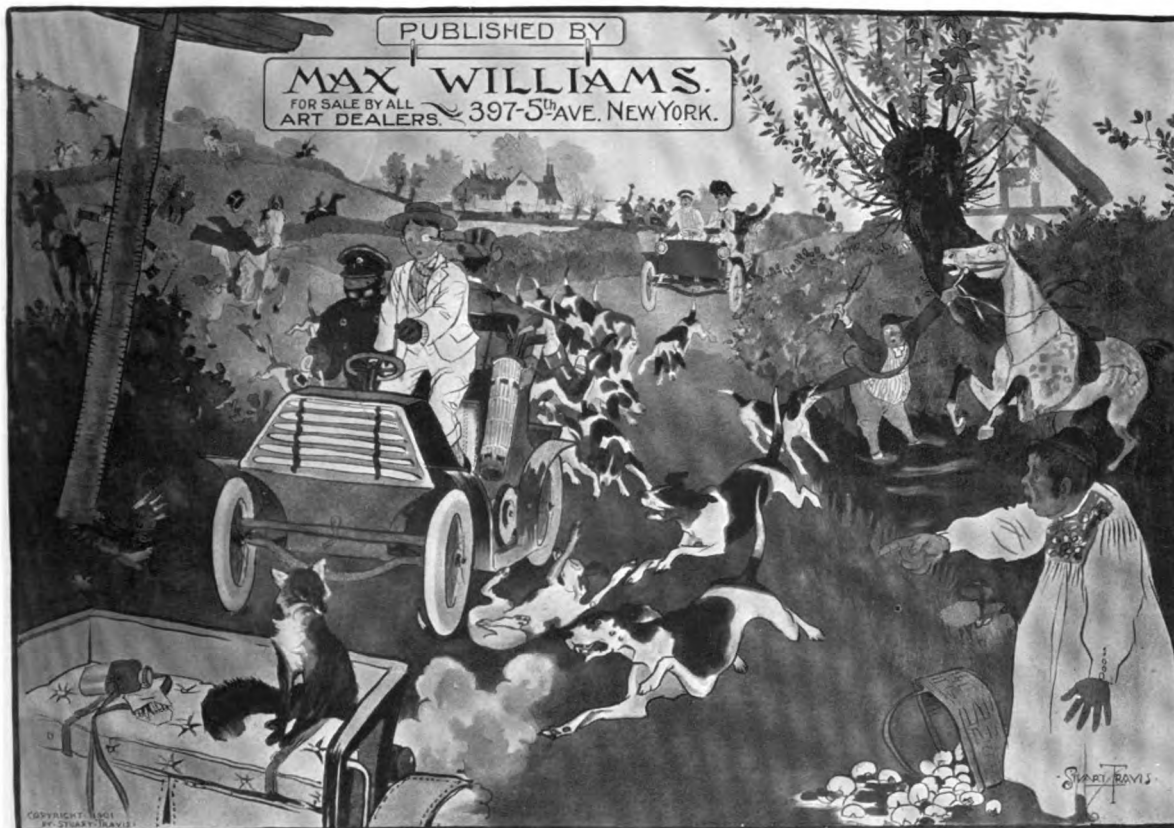


No. 140.

*If our salesmen have
not taken your order
don't wait till your
competitor gets the
leaders, but write for
catalogue and prices
while we can fill your
orders promptly.*

OUR TOP BUGGIES ARE LEADERS IN THEIR CLASS EVERYWHERE.

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One of a Series of 4 Pictures by Stuart Travis.
Facsimile in Colors. Price per set, \$15.00.

"The Interrupted Hunt."



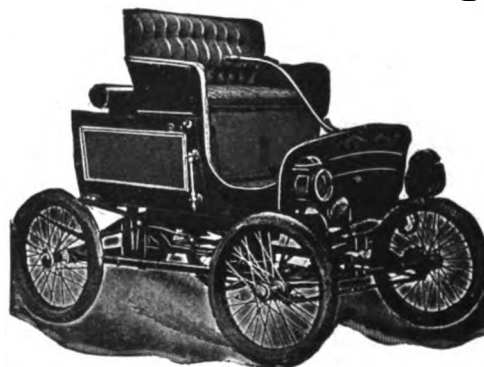
THE popularity of the "Oldsmobile" has become so marked that we take this opportunity to notify all imitators and infringers that, while our motor is covered by our engine and designed patents, we have a number of applications for patents upon the mechanical improvements in our device, which are allowed, covering nearly every part of the machine.

ILLUSTRATED CATALOG ON APPLICATION.

Olds Motor Works,

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DETROIT, MICHIGAN.

"Toledo" Steam Carriages



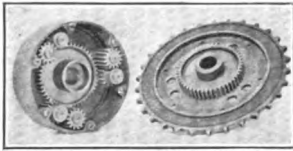
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EASY TO OPERATE

SEE OUR COMPLETE EXHIBIT FOR **1902 Pointers**
CHICAGO AUTO SHOW, MARCH 1ST TO 8TH.

International Motor Car Co.,
TOLEDO, OHIO.

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Spur Equalizing Gears.



An important selling feature of an automobile.

Buyers recognize the difference.

They know spur gears last longer than bevels and that they won't spread. We have the

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Formerly

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Manufacturers of

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Also special engines for carriage-men and others to construct their own vehicles. ♣ ♣ ♣ ♣ ♣

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Automobile Gasoline Motors.

Also Motors for Bicycles and Launches.

Castings and Working Drawings.



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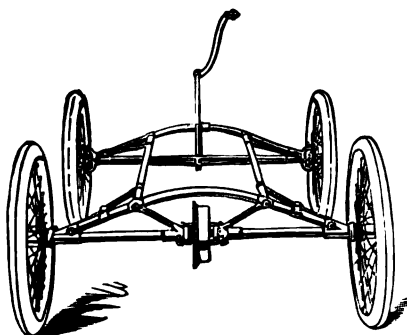


This design, any lettering, at \$5 per 100 or \$3 per 50. Oxidized Silver or Nickel Plat. Better rates on large orders. All plates heavy brass, high relief, heavy plate, extra finish.

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We make a specialty of gears suitable for Gas, Steam or Electric power. Our gears have been in use with good results to buyers. They are adapted for all classes of road work without straining.

Side or Centre Steering.

SIMPLICITY, SPEED, SERVICE.

READING AUTOMOBILE & GEAR CO.,

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FACTORY OF THE MOBILE COMPANY OF AMERICA. VIEW LOOKING SOUTH.

THE "MOBILE" A CARRIAGE FOR EVERY-DAY USE.

ON June 10th, four "Mobiles" started in the middle of the afternoon from the factory of The Mobile Company of America at Kingsland-Point-on-the-Hudson and ran to West Point, reaching the ferry at Garrisons in time for the 5:15 boat. Two hours and a half were spent in running about the Military Academy roads, then, after dinner, the four carriages started home by moonlight. The road from Kingsland Point to West Point is hilly, with many steep gradients scattered over its length; but from the State Camp at Peekskill through the Highlands of the Hudson to West Point occur long climbs and very steep and rough roads. The distance traveled was approximately, including the running at the Academy grounds, sixty-five miles. Not a delay or accident of any kind occurred; not a moment's worry to anyone of the eight people who made the journey. The "Mobiles" were in as good condition at the end as at the start—not one, but the entire four—and one of them had come up from New York to Kingsland Point before starting for West Point.

This gives an idea of what the "Mobile" is—a splendid piece of machinery, satisfactory in all its parts, of the best quality and workmanship throughout. Price, \$750. All visitors can inspect every department of the manufacture of "Mobiles." Twenty-five trains stop at Philipse Manor, the station on the company's grounds.

For information regarding "Mobiles" address

THE "MOBILE" COMPANY OF AMERICA,

PHILIPSE MANOR STATION, TARRYTOWN-ON-THE HUDSON, N. Y

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**THE BEST
ELECTRIC
AUTOMOBILE
BUILT.**

*Good Territory
Open for
Progressive
Dealers.*

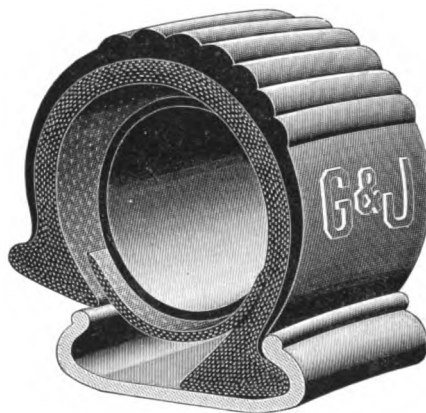
**1902 Models on Exhibition, Chicago
Automobile Show, March 1st to 8th.**

International Motor Car Co.

WAVERLEY DEPARTMENT

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G & J TIRES



Detachable Double Tube

**FASTEST AND STRONGEST
AUTOMOBILE TIRE**

Any tire may puncture. You can always repair a G & J
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PRICES UPON REQUEST

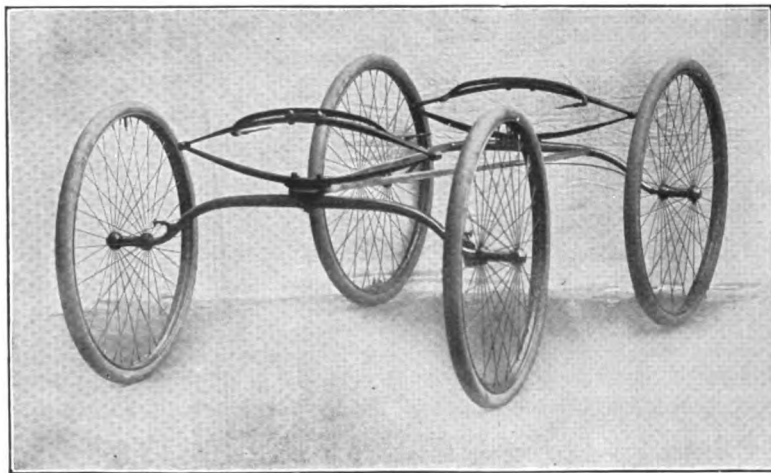
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Indianapolis, Ind.

HERCULES TUBULAR **RUNNING GEAR**

Made of High-grade Steel Tubing
Furnished Without Tires, Springs or Reaches

Made in two patterns
—end spring and
side bar.



Axles fitted with wire
wheels, bushings for
wood wheels, or wood
wheels complete.

LIGHTER by 30 pounds than
solid gears.

STRONGER for weight of metal used
than solid gears.

COSTS NO MORE than the best
forged gears,
and ready for the paint shop.

Automobile & Cycle Parts Co.

SMITH STAMPINGS FACTORY

MILWAUKEE, WIS.

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The Hub

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FOREIGN REPRESENTATIVES.

FRANCE.—L. Dupont, publisher of *Le Guide du Carrossier*, 78 Rue Boissiere, Paris. Subscription price, 15 francs, postpaid.

GERMANY.—Gustave Miesen, Bonn a. Rh. Subscription price, 12 marks, postpaid.

Technical Subjects.

IN our Technical Department we aim to publish information of a technical character, suitable for the workshop, the matter being prepared by practical men, in which they give for their fellow workers their experience. It sometimes happens that these workmen antagonize each other, or men who may be producers of materials of a different character than those advocated by the writers, and very naturally bring out criticisms, as manufacture has not yet reached a point where any one rule can be accepted by all, nor are we likely to see the day when there can be such a rule. This is a progressive age, and the good of to-day may not be the

good of the morrow. Men are constantly studying means for improvement, and new methods are being brought out. These are accepted by some and rejected by others, and this condition will continue. We have experienced the truth of this statement in the protest entered against an article that appeared in October HUB entitled "Painting Carriage Parts," and were censured by a manufacturer of a process which antagonized that recommended in this article. This manufacturer undoubtedly believes his is the best, better by far than any other, but others may not. In fact there are those who pin their faith on old time materials and who make this fact known by publishing in their catalogues, "No patent process employed, we have skilled workmen, and use first quality lead, oil and varnish." Others advertise their use of one or another of the processes which are on the market, and have proved meritorious. For us to advocate any one of these special processes is to lay ourselves liable to the charge of favoritism, or lower motives. We therefore give to all a hearing, believing we can best serve the carriage industry by keeping old as well as new methods before them and clearly explaining the merits of each, without instituting comparisons with any. Our columns are open to free discussions, when those discussions do not resort to personalities or pledging us to advocate some specific plan or practice. No trade journal can be true to the interests it represents if it cannot sink personal preferences, or if it lends its support to one idea. Recognizing this, THE HUB asks that its readers, who may find matters inviting criticism, base their criticisms upon a broad general policy, and refrain from individual references, which would be likely to irritate others and lead to a war of words that would benefit nobody. Whereas a clear statement of their views and clear reasons for their preferences would tend to benefit the introducers of new methods without injury to any.



Carriage Names.

IN January HUB we published a short article entitled "What Is a Runabout?" and illustrated a few carriages and wagons that were called "runabouts" by their builders. The number could have been greatly multiplied had we cared to do so, but those published served our purpose, which was to call attention to the misuse of terms in naming carriages, and to enter a protest against such misuse because of the confusion that it creates, for without an illustration the buyer could not know what kind of a vehicle he would receive. Then, too, we believe in retaining distinctive names for specific vehicles. We recognize the fact that custom often makes proper the use of terms that were not correct originally, such, for instance, as the "cabriolet," which was or-

iginally a two wheel vehicle; but someone conceived the idea of attaching a driver's seat and hanging the body on four wheels, retaining, however, the name "cabriolet," because of the use of the original form of the body. But for more than half a century the general characteristics of the four wheel cabriolet have been maintained. At the present time it is being robbed of its title by builders, who, for some unknown cause, are designating it as the panel boot Victoria, although the general lines of the body are those that prevailed when the change was made from a two to a four wheeler, and anterior to the entry of the Victoria in the carriage field. This liberty on the part of leading builders has been followed by builders of low grade work, and we see illustrations of the "cabriolet" in some catalogues that might just as well been designated a "farm wagon," and the name cabriolet bids fair to be as meaningless as that of the "run-about." Conditions and prejudices sometimes exert an influence and provide an excuse for changing the established name of some vehicles, as was the case with the long box wagon known as the "Democrat," a name that was popular, as applied to a long box four passenger spring wagon, until the early forties, at which time party feeling ran high, and the Henry Clay Whigs of central New York objected to riding in a "Democrat" wagon, and they changed the name to a "Trotabout," but the character of the vehicle was not changed in the least. Other localities changed the name as well, but the change was in name only, a change due to political prejudices. The French claim to have been the first to have produced the "Cabriolet" on four wheels. As to the fact we are not prepared to say, but there can be no question as to the Victoria. It was an English idea, and was named for England's queen. The French adopted the vehicle, but were slow to adopt the name, although they did not discard it entirely. They, however, substituted a compromise by most builders applying the name "Milord" to the cabriolet and Victoria alike. This helped out the French builder, and provided a euphonious name, while "Panel boot" Victoria, which is now being applied to the old form cabriolet, robs the name of its distinctive application for all of this class, and adds an unharmonious prefix. English builders are showing an inclination to drop "cabriolet" and adopt "Victoria." We recognize the difficulty of providing new names for the multitude of new designs, but we cannot find an excuse for the promiscuous use of a term regardless of its origin, and would much prefer a compound term, such as "sidebar" buggy, "pneumatic" runabout, "double suspension" Victoria, etc., as by this means we retain the family name and add the prefix as an explanatory antecedent.



Carriage Mechanics.

THE recent trade troubles in Cincinnati, O., directs attention once more to the lack of any system whereby men can be trained to become skilled workers in the carriage industry. There is, at this time, absolutely no apprentice system that deserves the name among carriage workers. A boy may, if he wishes, hire to a journeyman in any branch, and if ambitious and honest, serve a term of instruction, which will fit him as a journeyman, and if desirous of further advancement, he can take a course of instruction in the Carriage Builders' Technical School, and fit him for an advanced position in the carriage factory. Without this school the industry would be entirely dependent upon the foreign workshop for designers, draftsmen and skilled workmen, and because of this the school should receive more liberal aid than it now has. This lack of skilled workers is growing worse daily owing to the decrease in the number of men working in the smaller shops, a decrease due to the introduction of machinery, whereby skilled men are needed. So long as there was a moderate annual supply from the small factories, the ranks of skilled men were kept reasonably full, but now that this is failing and the very source of supply that was, is adding to the trouble, it becomes more than ever necessary that something in the way of an apprentice system be established. The primary cause for this falling off in the supply of skilled

workers was the introduction of machinery, but the trouble did not become serious until the supply of skilled workers began to be depleted by age. The old workers retired and there were few that were skilled to take their places, and as a result men had to be employed who knew nothing of carriage building, and who, to be made valuable, could be taught to work a machine after the patterns were made, or the machine set to the work. But such men are not, nor never will be, skilled mechanics. We are earnest advocates of good wages, as we believe well paid workmen contribute to the wealth, morals and enterprise of our nation, but we just as sincerely believe in merit being the basis of worth, and that the workman gives to his employer an honest return for the wages received. A force of workmen who are richly worth \$4 each a day to their employer is far more desirable than a force of men whose real worth is half that sum. There must, and always will be, the "hewers of wood and drawers of water," but this is not the source to which we can look for skilled workmen. Just what can be done to replenish the supply of skilled mechanics in the carriage industry we cannot say, but something must be done, and that something must be in the direction of employing a number of boys in each shop, the aggregate to be determined by the number of the force employed in each shop. The day is past when a long period of apprenticeship is necessary. An intelligent young man of eighteen years should be able to take the position of a skilled worker at twenty, after which he can continue his education until he becomes a master in his art. Some of our great employers of labor should be able to formulate a system.



Excluding Foreign Automobiles.

AMERICAN automobile manufacturers are beginning to protest against the importation of foreign built automobiles, and a committee is to be appointed to visit Washington and consult with Secretary Gage regarding the matter. So far as this action relates to the undervaluation of automobiles, the movement is to be encouraged. If a man chooses to pay \$15,000 for a French racer, that is his right, but when he, for the sake of saving a few dollars, swears to a value of one third that amount, he should be made to pay a full penalty for the swindle, and in that way contribute to the government receipts, and at the same time give all the protection that law should give to American manufacturers. If, as stated by builders, the American automobile builders are unable to fill their orders with any degree of promptness, owing to the great demand, no immediate harm is being done to business by these importations. On the contrary, they being racers, and high priced ones at that, serve to increase the interest in the automobile by introducing the sporting feature and stimulate the demand for all kinds of motors. Then, too, each and every foreign built machine possesses special elements of merit and they thus become studies for the American builder, and it is a poor compliment on the skill of the American automobile builder to fear the foreign machine as a competitor because of its superiority. There was a time when the American carriage builder had to protest against unjust competition, because of undervaluation, and he met it through the C. B. N. A., sending a committee to Washington and showing the department facts regarding such unfair competition, and the result was a true valuation of carriages was insured, and since that time no material complaints have been made. The few fine carriages that come from abroad are welcomed rather than opposed, as they place before the American builder the best ideas of the builders of Europe. No, gentlemen of the automobile industry, do not aim to exclude the foreign machine, as it will be energy wasted, but do compel the payment of custom duties on just valuations, and if in the end you cannot compete in quality, style, finish, speed and reliability, with your foreign competitor, quietly take a back seat and allow the American automobilist to go abroad for his machines. We, however, have no fear of such results, and are, therefore, not inclined to look upon the importation of foreign machines as an act to invite apprehension.

"Old Clos! Any Old Clos to Sell?"

Now the United States Senate has seriously signified its willingness to engage in second hand business, and is considering the advisability of buying of French promoters the badly worn Panama, it will be in order for representatives of all nations who have any old thing for sale to send their agents to Washington and open negotiations with our Senatorial bargain hunters. Just what those of Spain, Germany, England or other countries may have to offer we do not know, but without doubt they have a lot of old stock on their bargain counters that they would willingly dispose of. It is true they may not have railroads as backers, as in the case of the Isthmian canal, whose aim is to negotiate without the slightest intention of buying, and by getting up antagonism entirely prevent Uncle Sam from going into a legitimate business untrammelled and thus kill off all prospects of an Isthmian canal for generations to come. But it is always easy to find promoters who offer much and give but little, but who are careful to fill their own pockets. We have no faith in the promoters of the Panama scheme, and look upon the whole move as a prearranged scheme, whereby legislation may be deferred and the building of the waterway across the Isthmus be set back for a generation. The Panama Canal is but a blunderbuss in the hands of the railroad lobby, by which they hope to hold up legislation. These neither want the Panama nor Nicaragua, and the forcing of the Panama in the Senate after the House had voted almost unanimously for the Nicaragua Canal, is the bluff of the highwayman. The people of this country don't want the French ditch, but they do want an American canal, the Nicaragua, and will be content with none other, and the Senators who profess to want a canal, and yet vote for the Panama are but supple tools in the hands of the railroads, or are at heart enemies to a canal of any kind. We have faith to believe that the want of our people, as expressed by the vote of the House of Representatives, will prevail, but we feel that while there is an active railroad lobby combatting the Nicaragua Canal, every man who favors it should voice his views in the most public manner.

centers of heads, with 7 in. opening on main leaf; width of steel, $1\frac{3}{8}$ in.; number of plates, 3; thickness, No. 4 steel. Back, 35 in. long, with $7\frac{1}{2}$ in. opening on main leaf. Width of steel, $1\frac{3}{8}$ in.; number of plates, 3; thickness, No. 4 steel. Axles, 1 in. Tires, $1\frac{1}{2}$ in., cushioned; crescent channels. Fifth wheel, Bailey patent. Track, outside, 4 ft. 6 in.

Painting.—Body and seat riser, black; moldings of seat, black; canework, straw color; inside of seat painted black. Gear, black; no striping. Trimmings, black cloth; no facing on cushion; double roll back.

SURREY, IMITATION CANE SEATS.

Scale $\frac{1}{2}$ in. to the foot.

(See Fashion Plate No. 547.)

FASHION Plate No. 547 illustrates a neat and convenient surrey, fitted with two deep seats, finished in imitation cane work. While the body has no special features the line combinations are such as to give a fresh and pleasing appearance, without adding to the cost of production over other plain styles.

Dimensions of Woodwork.—Body: Width across top, 30 in.; across bottom, 29 in.; width of seat across top, 40 in.; across bottom, 34 in. Wheels: Wood hub; height, front, 34 in.; rear, 36 in. Hubs, length, 7 in.; diam. at center, 4 in.; front end, $2\frac{3}{4}$ in.; back end, $3\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in.; number of spokes 12 and 12; stagger, $\frac{3}{8}$ in.; depth of rims, $1\frac{1}{8}$ in.; depth of bands, front, $2\frac{1}{2}$ in.; back, $\frac{3}{4}$ in.; distance between center of axles, 69 in.

Dimensions of Ironwork.—Springs: Front, 35 in. long between centers of heads, with $7\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{1}{2}$ in.; number of plates, 4; thickness, No. 4 steel. Back, 35 in. long, with $7\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{1}{2}$ in.; number of plates, 3; thickness, No. 4 steel. Axles, $1\frac{1}{4}$ in. Tires, $1\frac{1}{2}$ in., cushioned; crescent channels. Fifth wheel, 14 in. diam. Track, outside, 4 ft. 8 in.

Painting.—Body, black; seat moldings, black; imitation canework, sulphur yellow. Gear, black; no striping. Trimming, black cloth; cushions and backs upholstered; dickey seat plain.

DOS-A-DOS STIVERS RUNABOUT.

(For illustration see "Latest Styles.")

PLATE CXCIX. represents a Stivers runabout provided with a dos-a-dos seat which fits it for four riders. The gear and body are of the genuine runabout as built by G. W. & H. D. Crawford Co., Delhi, N. Y., of which Woodruff & De Hart of 159 Broadway are sole selling agents. The style has met with much favor and is likely to be a great seller during the present year.

BIKE WAGON.

(For illustration see "Latest Styles.")

PLATE CC. illustrates bike wagon No. 28, built by the National Vehicle Co., of Indianapolis, Ind. This wagon has wood wheels, and is trimmed in best grade of green or blue cloth, French open head springs, long distance Collinge collar axles, Bradley shaft couplers and forge reach irons. In addition to this job the company's line consists of buggies, surreys, phaetons, stanhopers, runabouts and road wagons. The "National" line of vehicles is becoming a popular one with carriage dealers. In addition to the carriages the company are marketing some twelve different styles of National Electric Automobiles. This is a line that carriage dealers are taking to throughout the entire country, particularly the larger cities. The carriage dealer is the logical automobile agent and the number of desirable agencies placed by this concern show that the dealers appreciate this fact. As there is considerable unoccupied territory applications for agencies to this company will receive prompt and careful attention. The factory in which this line of vehicles is manufactured is thoroughly modern and up-to-date, being equipped with the latest improved machinery and in charge of thoroughly competent vehicle men. This company will make an exhibition at the Chicago Automobile Show, March 1st to 8th, where they will be pleased to meet members of the carriage trade who contemplate adding to their present line or taking on an automobile agency.

Description of Latest Styles.

STYLE FROM ABROAD.

WITH a view to showing the drift in styles of carriages abroad we give this month four illustrations, two from the French and two from the English, all of which possess certain novel features which may prove of value to our designers. Throughout the carriage world there is a striving after new effects and we can do no better work than to aid our designers by placing before them designs from other countries. Those by home workers can be procured with little trouble, but the foreign styles are less accessible and can be learned only through illustrations.

END-SPRING WAGON.

Scale $\frac{1}{2}$ in. to the foot.

(See Fashion Plate No. 546.)

FASHION Plate No. 546 illustrates an end-spring wagon with a long body, similar to that of the "runabout," hung on end, or elliptic springs, and furnished with a deep paneled seat, finished in imitation of canework. It is a style that should meet with a ready sale.

Dimensions of Woodwork.—Body: Length, 60 in.; width, 26 in.; depth, 6 in.; seat at bottom, 30 in.; at top, 36 in. Wheels, wood hub; height, front, 34 in.; rear, 36 in. Hubs, length, $6\frac{1}{2}$ in.; diam. at center, $3\frac{3}{4}$ in.; front end, $2\frac{1}{2}$ in.; back end, 3 in.; size of spokes, $1\frac{1}{8}$ in.; number of spokes, 12 and 12; stagger, $\frac{3}{8}$ in.; depth of rims, 1 in.; depth of bands, front, $2\frac{1}{2}$ in.; back, $\frac{3}{4}$ in.; distance between center of axles, 62 in.

Dimensions of Ironwork.—Springs: Front, 35 in. long between

THE FABER SULKY.

(For illustration see "Latest Styles.")

PLATE CCI. shows one of the Faber sulkies, manufactured by the Faber Sulky Co., of Rochester, N. Y. This sulky is patented and manufactured solely by the company owning the patent. Many of the speediest horses on the track have won before this sulky, and some of the world's records are included in the list.

EMPIRE "RUNABOUT."

(For illustration see "Latest Styles.")

PLATE CCII. illustrates a very desirable elliptic spring buggy manufactured by the Connor Carriage Co., of Amesbury, Mass. This is a high grade vehicle in every way. The body is large and roomy, the seat attractive, the gear of the most popular type, the wheels wood and of the height that is in greatest favor at the present time. They are fitted with solid, cushion or pneumatic tires to meet the wish of the buyer. The company furnish this vehicle complete and finished in the best manner or in the white ready for painting and trimming.

PNEUMATIC, END SPRING.

(For illustration see "Latest Styles.")

PLATE CCIII. illustrates a pneumatic, wire wheel, built by Keator & Wells, Cortland, N. Y. This vehicle is one that cannot fail to meet the approval of carriage owners, who appreciate neatness, comfort and style. It is up-to-date in all details of construction and is deserving of special mention.

SIX PASSENGER SURREY.

(For illustration see "Latest Styles.")

PLATE CCXIV. shows a serviceable and convenient vehicle for summer use by families or at summer resorts. It has ample accommodations for six passengers. The suspension is on heavy side springs and the harness is a plain long tug surrey harness without breeching.

FOUR PASSENGER TWO WHEELER.

(From *Le Guide du Carrossier*.)

(For illustration see "Latest Styles.")

PLATE CCV. shows a two wheeler for four passengers with a single top, which is simply an enlarged phaeton top. Our French contemporary designates this vehicle as a "buggy with four seats." In its construction the front seat is split and hinged so that one side can be folded up, to admit access to the rear seat. The seats can be placed dos-a-dos and the vehicle entered from the rear when the top is up.

The dimensions given are: Wheels 45 inches, diameter of the hubs $6\frac{1}{2}$ inches, length of hub $8\frac{3}{4}$ inches, diameter of axle arm $1\frac{3}{8}$ inch, length of spring 36 inches, width of steel $1\frac{3}{8}$ inches, number of plates 5. Painting: Body black, seat sulphur yellow, gear sulphur yellow, striped black, trimming blue cloth.

GENTLEMAN'S DRIVING PHAETON.

(From *The Coach Builders and Wheelwrights Art Journal*.)

(For illustration see "Latest Styles.")

PLATE CCVI. represents a vehicle designated as a gentleman's driving phaeton by the publisher of the English journal most American builders would designate as a spider, or spider phaeton. The vehicle is mounted to a height suitable for a pair of cobs 14 to 15 hands high. The moulding of the seat is the leading feature. The narrow box that shows under the seat will not meet the views of American buy-

ers, but it is without doubt a convenience. The colors suggested by the print are blue for the seat panels, black and red for the other parts of the body, and red for the gear, trimming blue cloth.

TILBURY ON FOUR WHEELS.

(From *Le Guide du Carrossier*.)

(For illustration see "Latest Styles.")

PLATE CCVII. illustrates a standard "Tilbury" body placed upon four wheels by the use of a platform gear at the front. The designer evidently did not intend that the wheels should turn entirely under as he introduced a stay from the nutter bar of the platform to the end of the body and he marred the appearance of the vehicle by gearing it unnecessarily long. There is nothing to prevent shortening the gear and giving the vehicle a more compact appearance. The dimensions of leading parts are: Wheels 30 and 47 inches; length of hubs $8\frac{1}{2}$ inches, diameter of hubs 6 and $6\frac{1}{4}$ inches, axles $\frac{3}{8}$ inch; springs, rear $33\frac{1}{2}$ inches long; front $31\frac{1}{2}$ inches; number of plates 3 and 4; width of steel $1\frac{1}{2}$ inch; trimming, drab cloth; painting, body black, seat panel and stripes orange, gear orange striped black.

PRIVATE HANSOM.

(For illustration see "Latest Styles.")

(From *The Coach Builders' and Wheelwrights' Art Journal*.)

PLATE CCVIII. This two wheeled carriage in some parts of the country is quite unknown to coach makers, as far as having them to build goes. However, from their character as a public vehicle plying for hire, they have merged into lines adaptable to private uses, and several private carriage building firms have made such improvements in their construction that they make a specialty in building them.

As a private carriage the hansom makes a very smart turnout, and its peculiar adaptability and lines offer to the designer a broad field for originality. Our design shows the lines of a brougham hansom, which, in smart society, is a favorite vehicle for town use in shopping and making calls. But to make it suitable for this, it must be turned out as a high class piece of carriage building, and savor of nothing approaching to the construction of the professional cab builder.

The body is made as an ordinary brougham body in the hind framing; reference to the inside elevation will make this clear to any body maker and make the work simple of grasp, whether a workman had ever made such a body or not. A true coach body maker, or a thorough carriage builder, never stops at the ford—which says, "I have never made such a carriage before, and I don't understand it"—but goes ahead with it as if it were a driving box or an ordinary piece of work. There is never any hesitancy where there is a coach maker who thoroughly understands his business.

The hind quarter, bottomside, and corner pillar are in one piece up to the elbow, and half checked above the elbow to the corner pillar piece. The standing pillar is framed to give a seat room of 42 inches on the inside, the front or shutting pillar is framed to allow of the door pillars shutting in level on the inside. This pillar is got out wide at the bottom and framed into the bottomside and the top cut down to the thickness of the door pillar, so as to give a light and compact surface to the body side light.

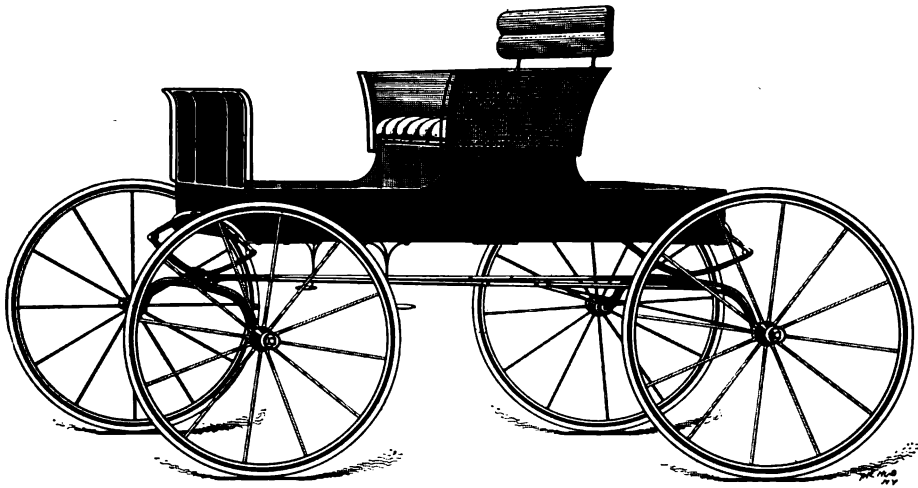
Width of hind quarter at top, 26 in.; length of hind bottomside from corner to back of pillar, $16\frac{1}{2}$ inches; width from outside of front pillar to inside of standing pillar, 18 in.; diameter of door circle, $8\frac{3}{4}$ inches.

The doors are made in the same way that brougham doors are made, and the pillars wide enough for the glass frames to work up and down, as shown on the pillar in the drawing. The center upright bar, to which the doors are hinged, is not more than $1\frac{1}{8}$ in. thick, and strengthened with inside plate with corner feet top and bottom, and the moldings are worked on to suit the line of the body, as per the perspective drawing.

The bottomsides are got out all in one piece, and the three cross bars framed in as shown; the bars fit hard between the bottomsides, which are edge plated, flaps being forged to the plate to take these bars. The body plate is forged to take the bottomside and hind cross bars, and to come down the standing pillar and along the edge of the bottomside; the bottom boards are boxed in between these bars sectionally and fitted in the long way of the grain.

(Continued on page 509.)

Latest Styles. February, 1902

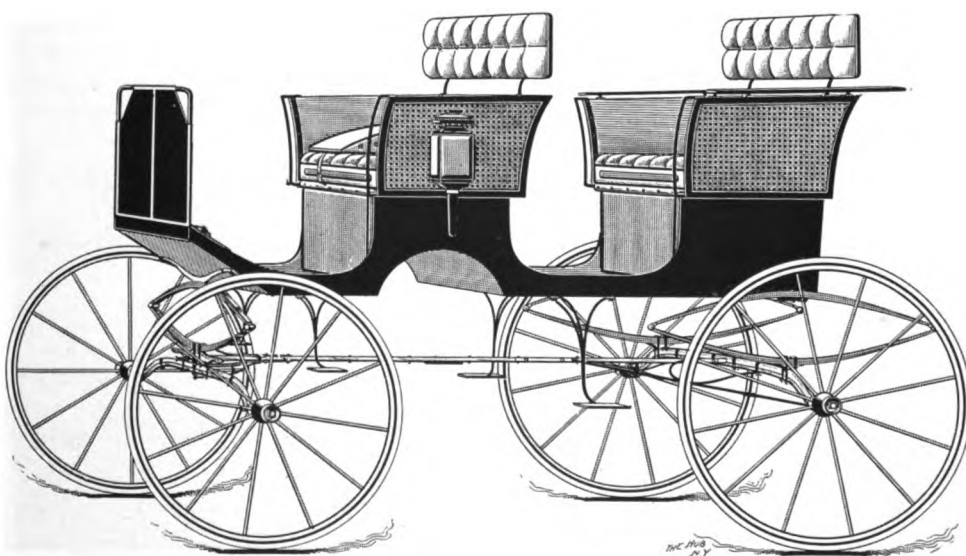


No. 546. End Spring Wagon.

SCALE, $\frac{3}{8}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$1.50.)



No. 547. Surrey, Imitation Cane Seats.

SCALE, $\frac{1}{2}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$1.50.)

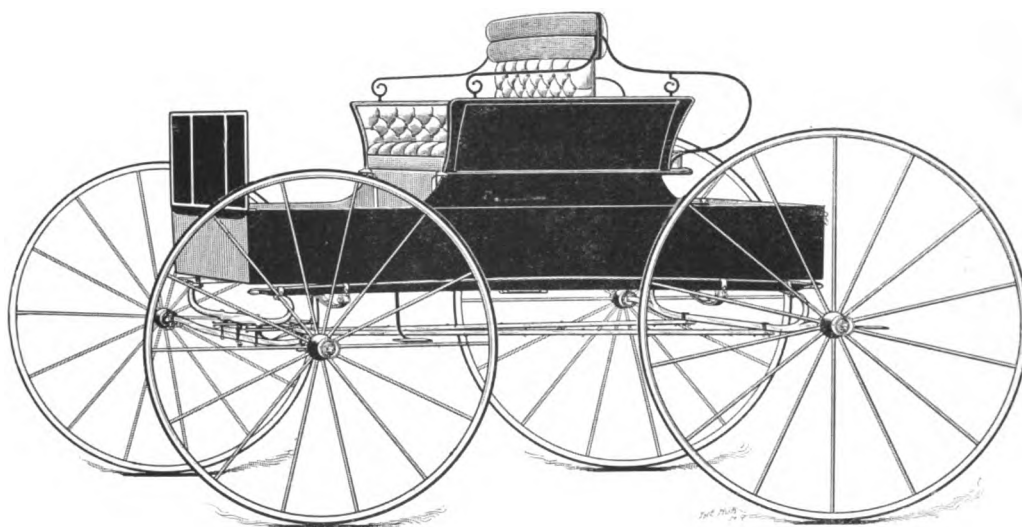


Plate CXCIX

Dos-a-Dos Runabout.

See description under "Latest Styles."

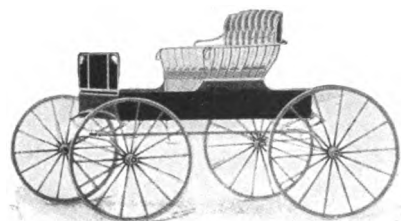


Plate CC.

Bike Wagon.

See description under "Latest Styles."

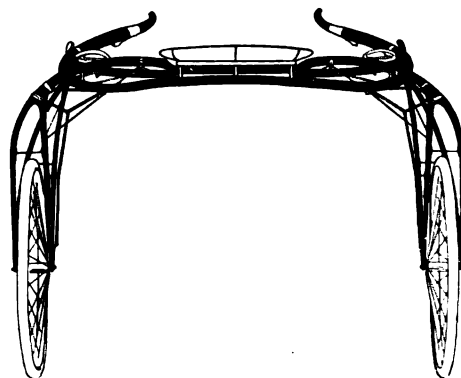
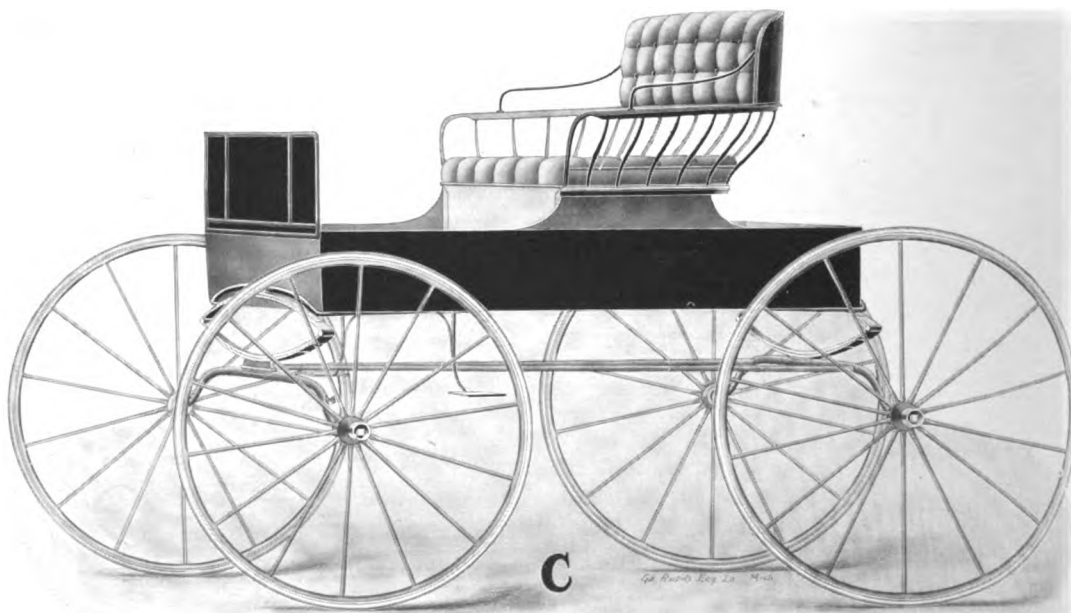


Plate CCI.

Faber Suiky.

See description under "Latest Styles."

Plate CCII.
 Empire "Runabout."
 See description under
 "Latest Styles."



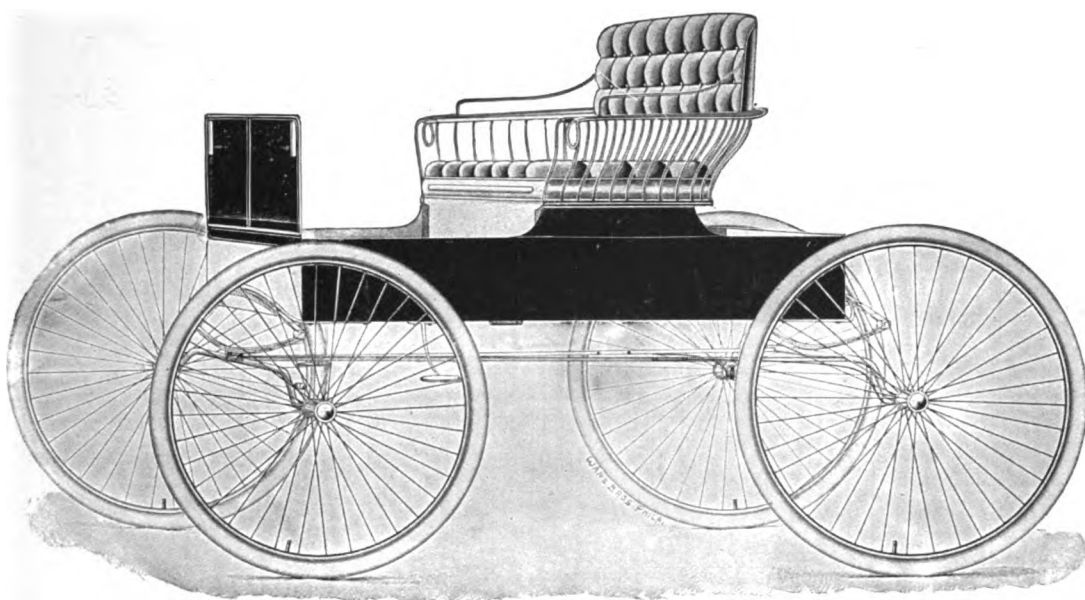


Plate CCIII.
Pneumatic, End Spring.
See description under "Latest Styles."

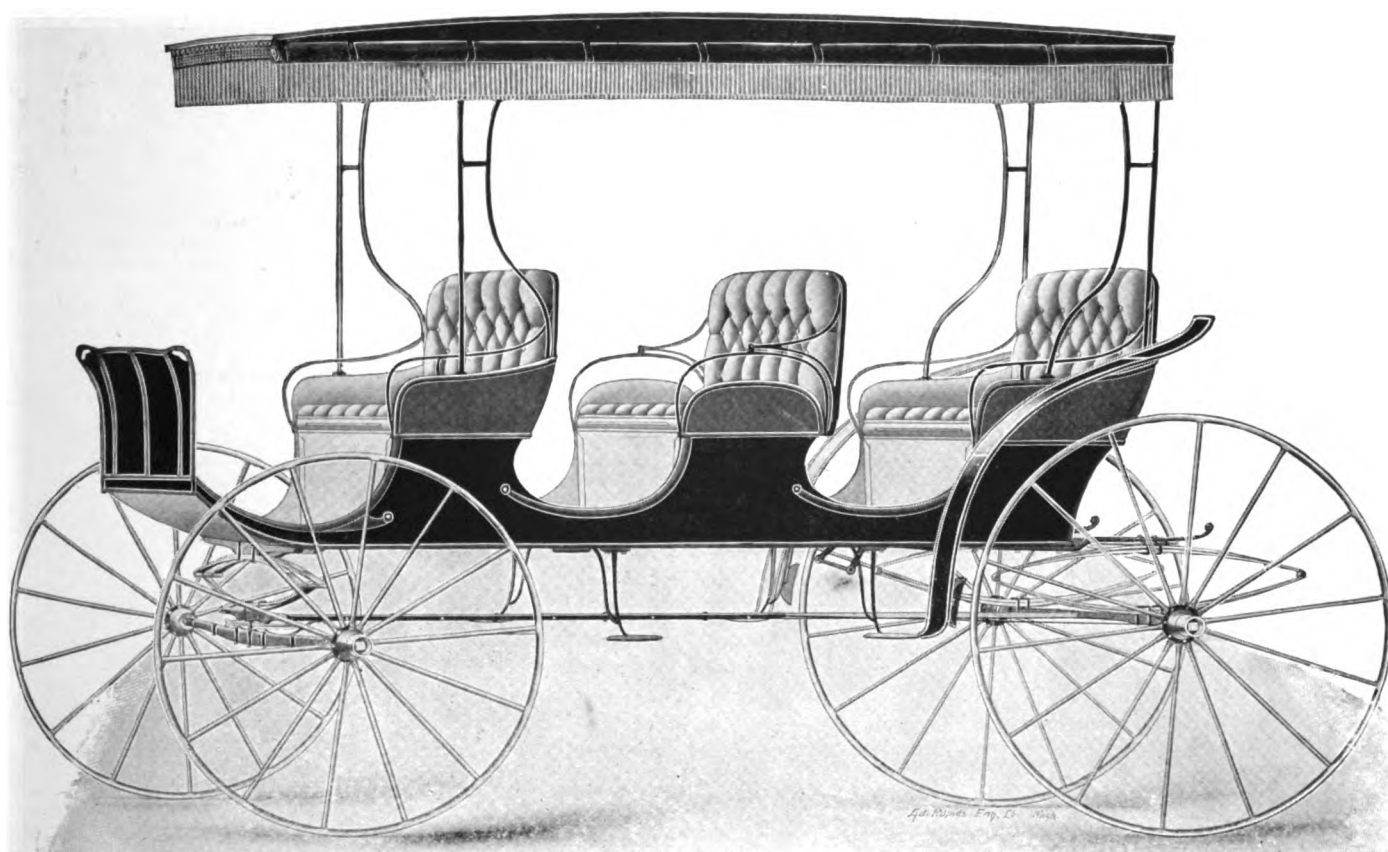


Plate CCIV.
Six Passenger Surrey.
See description under "Latest Styles."

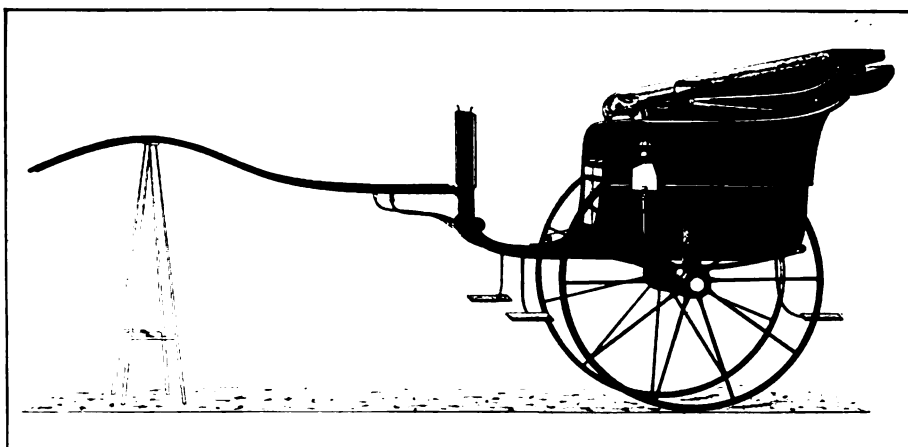


Plate CCV. Four Passenger "Buggy." From "Le Guide du Carrossier."
See description under "Latest Styles."

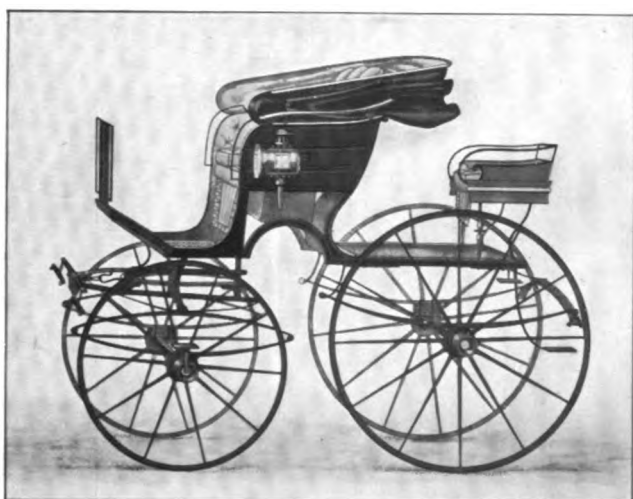


Plate CCVI. Gentleman's Driving Phaeton. From "Coach Builders and Wheelwrights' Art Journal."
See description under "Latest Styles."

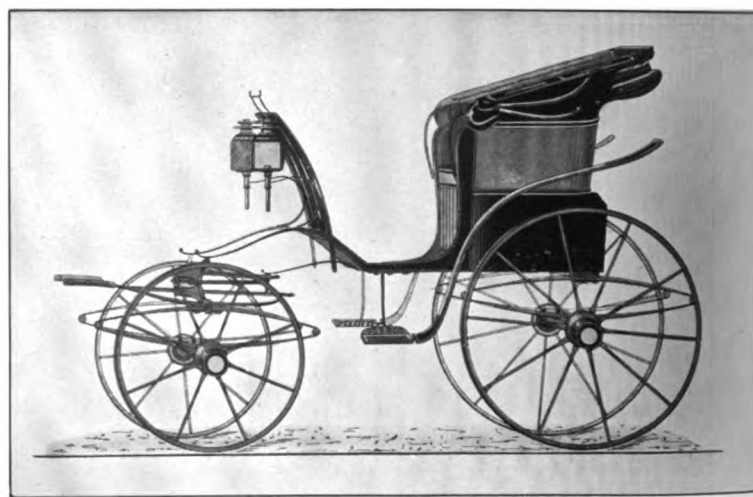


Plate CCVII. Tilbury Body on Four Wheels. From "Le Guide du Carrossier."
See description under "Latest Styles."

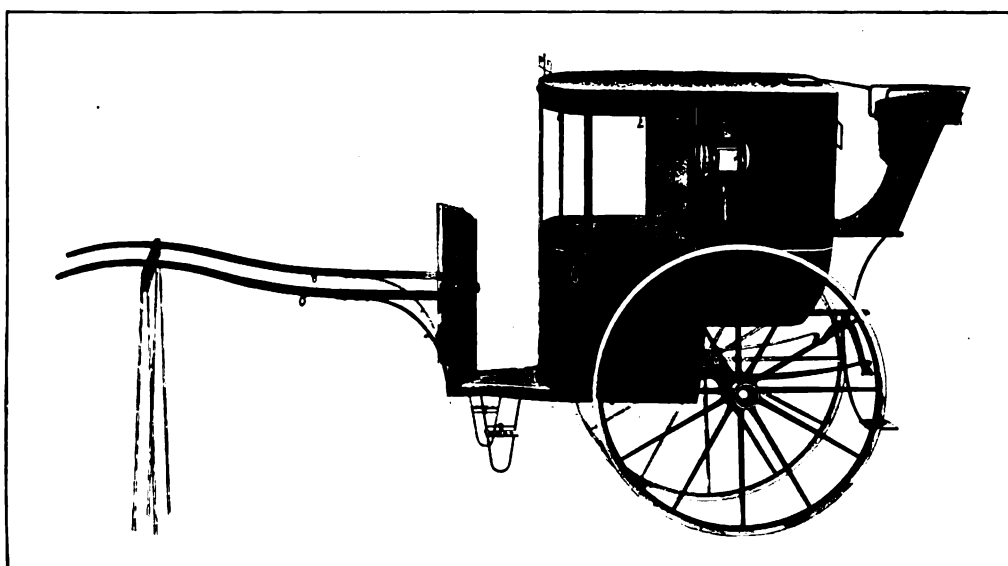


Plate CCVIII. Private Hansom. From "Coach Builders and Wheelwrights' Art Journal."
See description under "Latest Styles."

Plate CCIX.

Stanhope and Breast Collar Harness.

See description under "Latest Styles."

(Electrotype, \$2.00.)

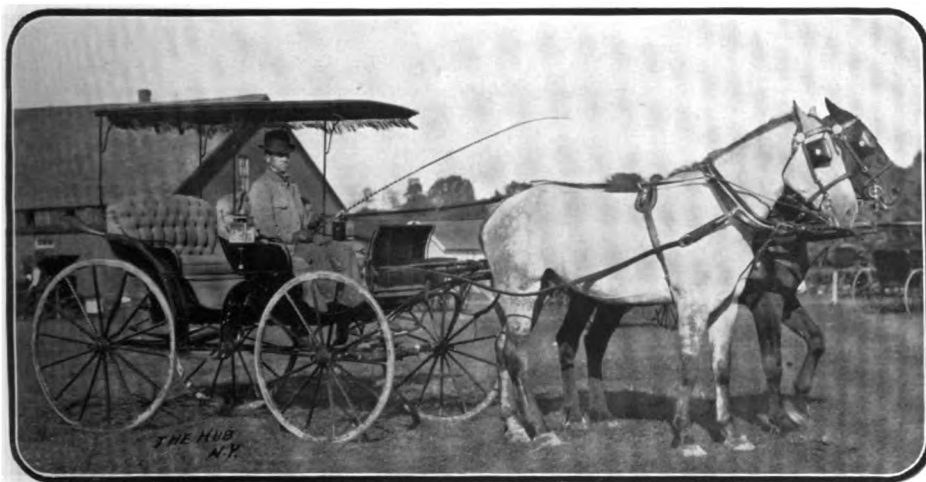


Plate CCX.

Family Surrey.

See description under "Latest Styles."

(Electrotype, \$2.00.)

Plate CCXI.

B. W. Moyer's Prize Horse and Stanhope.

See description under "Latest Styles."



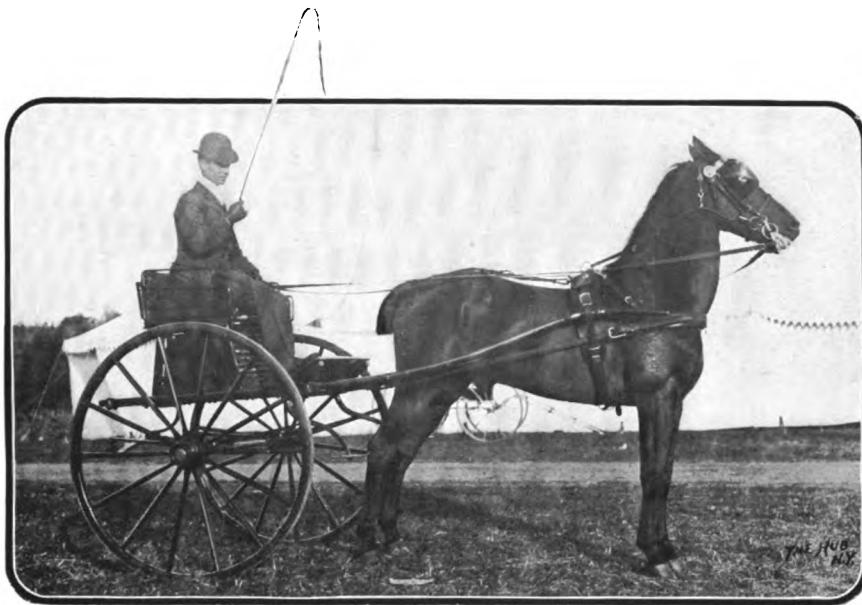


Plate CCXII.

Two Wheeler, Breast Collar Harness.

See description under "Latest Styles."

(Electrotype, \$2.00.)



Plate CCXIII.

End Spring Pneumatic.

See description under "Latest Styles."

(Electrotype, \$2.00.)

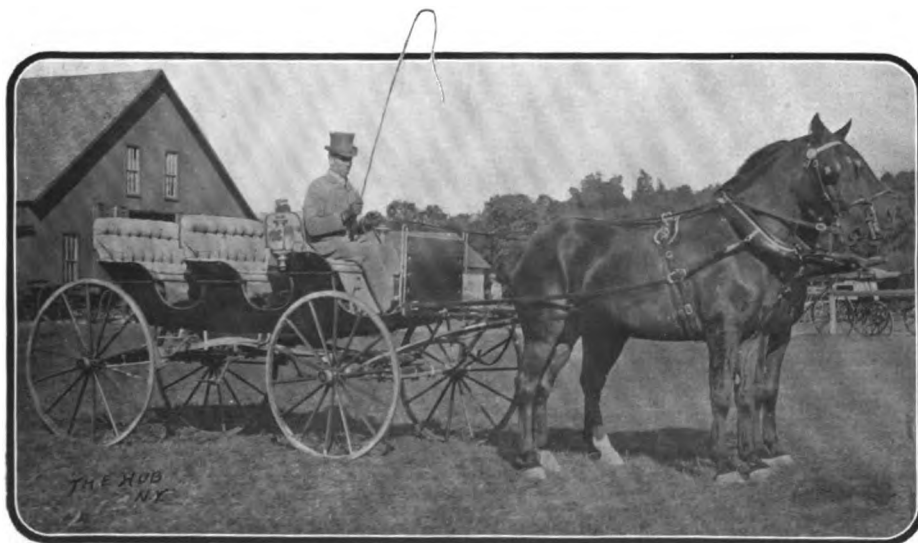
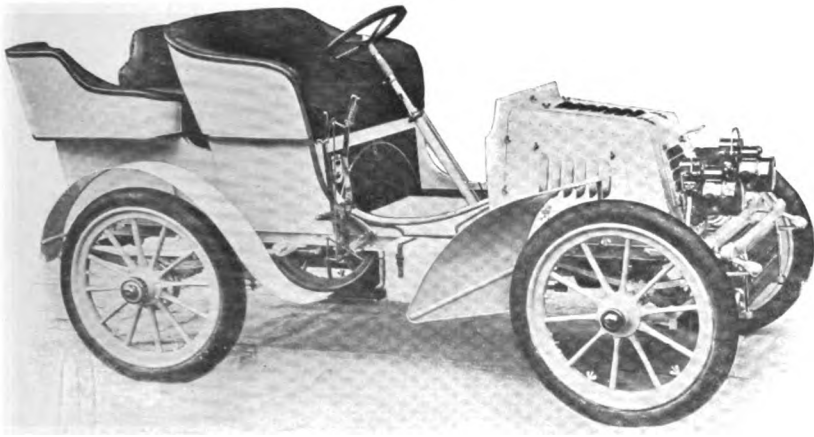


Plate CCXIV.

Side Spring Six Passenger Surrey.

See description under "Latest Styles."

(Electrotype, \$2.00.)

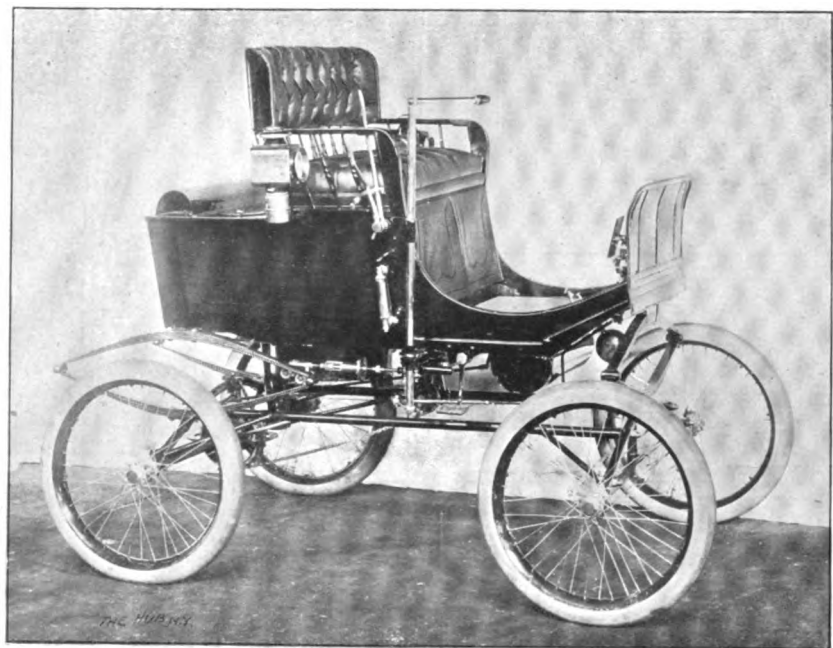


Peerless Manufacturing Co.'s Automobile, Type 4,
with Tonneau.

For description, see "Automobile Department."

Milwaukee Automobile Co.'s Steam Automobile.

For description, see "Automobile Department."



Oliver Lippencott's "Toledo" (Steam)
Automobile.

For description, see "Automobile Department."

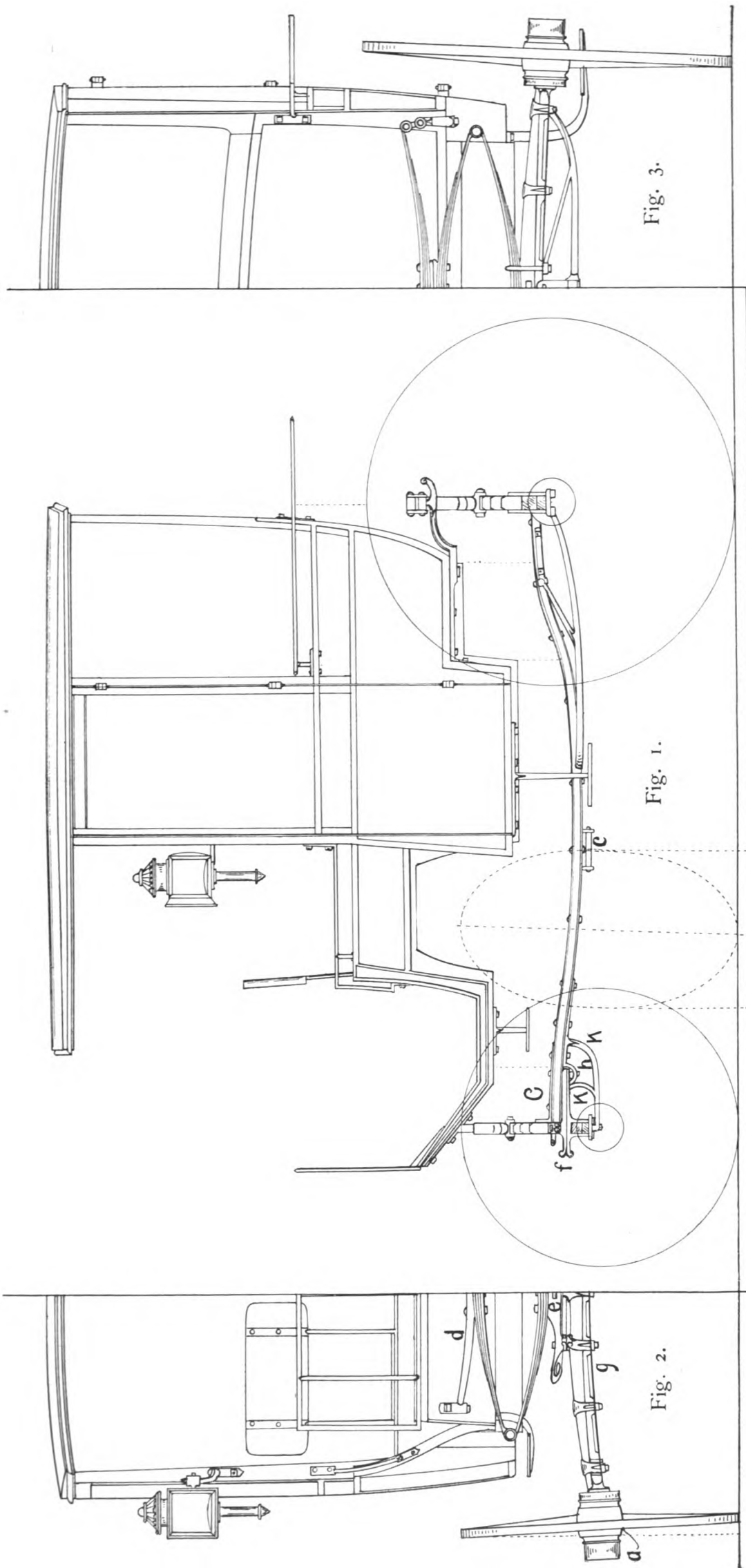


Fig. 3.

Fig. 1.

Fig. 2.

Fig. 4.

CARRIAGE TECHNICAL DEPARTMENT.

Comprising the Wood, Smith, Paint and Trimming Shops.

WORKING DRAWING OF A ROCKAWAY WITH LOW DOOR PANEL.

($\frac{3}{4}$ inch scale.)

(See Working Drawing, page 492.)

In our working drawing this month we show a design of light rockaway to carry four persons. The body is the regular width, but of a reduced length, being 6 ft. 6 in. The regular length for full size is 7 ft. 2 in. The body is also made up the full strength of that of a regular coupé rockaway. The head room is $42\frac{1}{2}$ in., which for a person 5 ft. 8 in. high is all that is required, since the height of the man when sitting in a natural, comfortable position is but 36 in., with hat on. The height of rockaway bodies always spoil their appearance, especially the end views. Generally they look too narrow. We have made the body 43 in. wide by 47 in. high at the back end, and if we add to this end view, that of the side sweep of the standing pillar, we will have a square shape, consequently our design will look lower than it is. Some of the box styles of rockaways are only 39 in. wide, across the back pillars, while they are 58 in. high, their width being fixed by the width of track which is 4 ft. 10 in., as the body must hang between the inside of the two elliptic springs at the rear, the springs being clipped to a coach axle, close up to the hub. We have a wider body to hang on two elliptic springs at the rear axle, or as we have it mounted, on the so-called "Philadelphia" spring; or we can, if preferred, hang the back end on three-quarters elliptic and cross spring, which is a good suspension, in fact is the best suspension known to the trade; but we select this mode of suspension because it is the fashion at this time.

The body is made to look light, but it is made up heavy, having heavy rocker plates and heavy rockers. The standing pillars project outside of the rockers, $4\frac{1}{2}$ in. front, and $5\frac{1}{2}$ in. back, see end elevation Fig. 3, which gives a broad bottomside and a broad corner pillar, all of which is essential to a first class job; so that we can fix the foot of the corner-pillar into the bottomside in a thoroughly substantial manner. The jointing of this pillar to the bottomside is in most instances of an inferior fixing, generally with stump tenon and mitre, which after all has nothing to hold it save glue to the end wood and one screw. The panel when fixed to the pillar in the groove, is seldom clamped up solid to the pillar, which, if done, would help to hold it up to a joint with the bottomside. Here all this is carefully planned to bring about a solid framing to the hanging up, which is the most important matter in the life of the carriage. This broad surface looks well, from any point of view, while that of a mere projection of two and a half in. outside of the rocker, as heretofore made, does not look well, because it looks weak, and when the iron body loops are bolted on there is no wood surface to show a smooth projection, of "offset" as termed in the shop. According to that method of carriage making, especially that of body making, we would have to commence the workable draft of the body, by calculating the back dimensions of the corner pillars. This calculation does determine the rear end width of the rocker. It is reasonable and withal the most practical procedure in building a vehicle, and if we will look at the design of the corner pillar, rear elevation Fig. 3, we can see that it is properly poised and of good proportion. This corner pillar has an important effect on the appearance of the body of the carriage. The width of the front end of the rocker is determined by the width of the track; the locking under of the front wheel, as it will be noticed by consulting Fig. 4. The seat panel projects to a required width outside of the rocker, and thus enables us to set the wheel far enough forward to make it convenient to

reach the front seat, which will allow a straight panel across the rocker at the rear of the cutunder. The more spread we give to the front of the rockers, the further back we must place the front axle and spring, consequently interfere with a low suspension, and requires a carved panel at the back, which cuts off the leg room for the riders of the rear seat. The result obtained by this method of making the body is to effect an original style that will be appreciated by the builders of fine light carriages. It produces a new idea to the eye, and will benefit the trade of carriage making.

We call particular attention to this construction of the body, the effect of which can be seen in the front, the back, and the bottom view of the drawings, all of which are presented in half width, looking to the offside of the carriage, as seen from the front, back and the bottom. Foreign carriage builders are not familiar with the details of construction of the perch carriage as built in this country. In this drawing we have in every respect a representative of the most popular family carriage in America. Seldom, if ever, is the platform suspension preferred by either the builder or the customer. The suspension shown is the one that suits the great majority, and for this reason we make a drawing of it and will describe in detail.

It is of no consequence to this carriage whether we curve the center of the axles above or below the straight line, the fact remains that the diameter of the front wheel determines the whole height of the carriage, because the archway of the body is built over the given height of the front wheel; the front seat is built on over this archway, and that the head room is then measured from this seat bottom, which gives the horizontal line of the head rail, and consequently the whole height of the body, at all of the points. But aside from this we are at liberty to proceed with the design of the carriage part as the taste, judgment and practical ability of the workman will suggest. We can readily explain the reason which guides us in designing the carriage part for this rockaway. We first describe the front wheel as stationed upon the side elevation; second, to a track of 4 ft. 8 in., as in the front elevation; third, to a track of 4 ft. 8 in., as on the horizontal plane, Fig. 4. The swing of the wheel depends upon the dish to which the tire will draw the rim and spokes, which is, on the front wheel, as inclined to the vertical plane, $1\frac{1}{2}$ in. The dish then as measured at the point a Fig. 2, for a plumb spoke is $\frac{7}{16}$ of an inch. These dimensions of the front elevation of the wheel are then carried to the plan, and directly below that of the side elevation, and from the center b the points on the rim of the wheel are traced; the limit is a point on the perch c, against which the tire of the wheel will touch. By this we find the dimensions of the cutunder of the body. The height at the top of the arch is determined by the jounce of the front and the back springs, the opening of which will approximate 6 in. This done, we outline the front seat, and the pitch of the bracket front. For the span bar d we allow 2 in.; for the elliptic spring, 9 in.; for the head block c, $1\frac{3}{4}$ in.; for the fifth wheel f, $1\frac{1}{8}$ in.; for the axle head, g, $1\frac{3}{8}$ in., and for the center of the axle, $\frac{7}{8}$ in. The amount which remains above the center of the wheel is the arch of the axle. By proceeding in this way we obtain the proper position for the front end of the perch C, Fig. 1, which ought to line up with the boot rocker above it at the fifth wheel f. On the other hand, if we had dropped the axle in the center, the distance A, B, Fig. 1, would have been 3 in. greater than on the drawing, and that without lowering the body. In this way we proceed to set the rear spring. The idea is to shape the perch agreeably to the lower outline of the body, and in this way fix the back end to the center of the axle, which is arched a trifle less than the front axle, but is similar to it. The perch supports the axles in this position. The front axle is pivoted to the head block C. The top half of the fifth wheel is bolted to the ends of the head block and

also to the perch; it is stationary. The lower half of the fifth wheel is clipped to the axle, and supported at the perch by an iron guard which is fitted to the under side of the perch and closely coincides with the half round of the lower surface of the bottom half of the fifth wheel, permitting it to turn freely, but adjustable to a friction with the upper part of wheel by a set screw *h*, Fig. 1, which prevents a rattle. This guard is solid with the two braces *K, K*, that are bolted to the perch in front and back of the circle. The front end of this brace is pivoted to the underside of the axle by the center pin on the clip yoke, which is also the means of fixing the kingbolt to the axle. The bolt passes through the head block and the plates of the lower half of the elliptic spring, with a thread and nut to secure the two fifth wheel plates together. On the bottom of the headblock and perch there is a plate extending the length, each way, of both perch and headblock, and firmly bolted to both; the center of this plate to receive the collar of the kingbolt, which is milled to a fit. Size of kingbolt, $\frac{1}{2}$ in.; size of collar, 1 in.; size of the perch, $1\frac{1}{3}$ in. wide, by 1 in. deep. The two ends of the perch are tenoned into the headblock and back axlehead, and flush with their bottom surfaces. The rear axle is braced as shown in the back and the plan. The side braces are riveted to the perch, and then angled off to the bottom of the rear axle, near the collar, to which it is clipped. Size of stem of clip, $\frac{5}{16}$ in.; size of brace, $\frac{3}{4}$ in. oval. This is plainly shown on the drawings, and does not require further explanation. The front spring is bolted to the headblock. The rear spring is clipped to the axle; the top spring is bolted to the elliptic with a block between them.

In this drawing the body at the front is bolted to the span-bar; the bar is bolted to the spring, the spring to the headblock, the headblock to the fifth wheel, the fifth wheel is pivoted to the axle, so that when an uneven roadway is met with the winding stress is supposed to be taken up at the elliptic spring, where, if the span-bar was pivoted to the top of the elliptic spring, the stress would be obviated at all points so far as the body is concerned; but while this is common knowledge among carriage builders, it never has been used to a material degree; but in automobile building it may often be seen.

The principal reason why a light perch like this will support the elliptic springs in their upright position is that with an end thrust towards either the front or back the perch is acted upon at its center from two opposite directions, the one offsetting the other. The force impinging upon the center of the perch from the rear is a downward thrust when the stress is a forward one. At the same time this forward thrust is met from the opposite direction by the leverage acting upon the front spring, which tends to bow the perch upward at the center, while the stress on the back spring tends to bow the perch down at the center, and there can be no stress whatever upon the perch, because a perch on an elliptic spring carriage never breaks from this kind of force, and it is very rare when they break at all, for the reasons given above. There is less stress on this kind of a perch gear than on any other gear. It runs steady and has proven that it is built on true principles.

Two kinds of axles are used in the make of fine carriages, and the principle upon which they are made is true for one and wrong for the other; since they differ both cannot be right. When we dish a wheel we commence to involve the work from a simple to a complicated structure. To strengthen the spoke to prevent its springing we set it straight up and down to receive the weight placed upon it, because the weight descends in strictly a vertical direction. The under spoke, called the "ground spoke," must be plumb. It is the only spoke receiving weight in the wheel that can be plumb at one and the same time; the other spokes are at the same instant inclined to the vertical plane of the revolving wheel. This necessity for a plumb spoke in a dished wheel requires that the hub must be at right angles to the face of the rim of the wheel; hence the hub is not, and cannot be, parallel to the floor line if the rim of the wheel is inclined outward at the top. Then, in setting the wheel to a plumb under spoke, the hub must also incline to the horizontal. Then, if we use a parallel axle, having a spindle—that is, one that is as large at the nut as at the collar, like that of the original Collinge. When the wheel revolves on this axle it always crowds on the collar. The reason for this is because the bottom of the arm of the axle is higher at the collar than at the nut, and the box in the hub of the wheel is turning on an inclined arm. The other axle which we use is not a parallel axle, but is tapered towards the point, a sufficient amount to bring its under surface to a horizontal direction; then the revolving wheel will not crowd either the collar or nut, and will turn with

the least friction. An axle never breaks at the point, but at the collar. Naturally it is made the heaviest at the shoulder. Here all the weight of the body is fixed at its center. To overcome this applied stress we either curve the axle at its center, up or down, from the straight line, either below or above the center of the arm of the axle. To this fan-tail shape of the stock of the axle we clip a wood bed, generally cemented on, and always a perfect fit, to which the spring is fitted and clipped on. The width of the axle at the center must be the width of the spring, so that the clip will draw straight. The same rule is observed for the front axle, although the spring is not fixed to the axle.

The drawings show intelligently what the builder may expect if he follows the design of the body and gear.

The dimensions for this carriage are: Body, 6 ft. 6 in. long; width across coupe pillars, 45 in.; across hinge pillar, 48 in.; across back pillars, 42 in.; width across rockers, front, 31 in., back, 36 in. Wheels, 33 in. and 44 in. Hubs, front $5\frac{1}{2}$ in.; rear, $5\frac{1}{2}$ in.; 12 and 14 spokes; size of spoke, $1\frac{1}{4}$ in.; tires, $1\frac{1}{8}$ by $\frac{5}{16}$ in. Track, 4 ft. 8 in. Axles, $1\frac{1}{8}$ in. for $6\frac{1}{2}$ in. hubs. Length of front spring, 36 in.; width $1\frac{1}{2}$ in.; four plates; rear spring 38 in. long; width, $1\frac{1}{2}$ in.; five plates, $10\frac{1}{2}$ in. high. Shifting lazy backs are used for the front seat. The drawing shows the position to which they may be turned. Rocker plates are $2\frac{1}{2}$ by $1\frac{1}{2}$ in. steel.

IMPROVED TONGS FOR HOLDING PLATE IRONS.

It is quite safe to say there is not a smith in existence who has not experienced much inconvenience in the handling of wide and heavy plate irons, not only in lifting from the fire but in the handling of them as well on the anvil; also in the fitting of them to some required point; also in the handling of melted iron, which may include such as T H; or angle irons with a single jawed or narrow jawed tongs, by which it is quite a task to keep the iron in balance

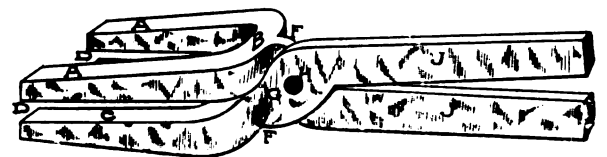


Fig. 1.

on the anvil or to turn quick enough, with an important heat, for the helper to get in his stroke without turning the iron over.

The writer has often had to take or use two pairs of tongs to remove such irons from the fire, having to drop one as soon as the iron was placed on the anvil, so as to be able to grasp the hammer.

The illustrated double jawed, single veined tongs, the tongs with two jaws with a single grip, are shown herewith. Fig. 1. A. shows the upper jaw; B, the back at rear connection; C shows the lower jaws; D, the space between jaws for grasping irons; E, the intersection or part of vein joints; F, the outer line of one vein at the swell; G, the rivet which joins them and fits the tongs for use; H, the sections of the veins adjoining the joint G. Fig. 2 shows

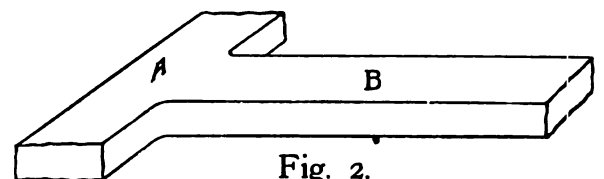


Fig. 2.

outline of how to begin to make the jaws, A, the bar to which is welded the tong part, B, which forms the T. A is used to make the jaws, B to make the veins. Make of Norway, or better still, good mild steel. Make the jaws $1\frac{1}{4}$ in. wide, $\frac{1}{2}$ in. thick at but, taper to $\frac{1}{4}$ in.; make the jaws $2\frac{1}{2}$ in. long; less than 4 in. between would be almost useless. It would be well when there is much of the work mentioned to be done to have three pairs, varying from 4 in. space between jaws, as per E, Fig. 1. One for grasping from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. plate, to 6 in. space between jaws to grasp $\frac{1}{4}$ to $\frac{3}{8}$ in. plate, and another pair to spread 8 in. and to grasp from $\frac{3}{8}$ to $\frac{1}{2}$ in. plates.

SOME THINGS ABOUT BOLTS.

THERE is more in driving the bolt to secure parts of the vehicle together than many imagine. It is of the most vital import to all the parts dependent on the bolt that the head rests evenly on its whole circumference on the metal or wood upon which it has to rest while performing its functions. If it be on wood and it does not rest evenly before setting to position by means of the nut, where it strikes first, it cuts the wood fiber loose, sinks in and forms a cavity for water by the time the other part reaches the required point.

As a matter of course we hit a few smart raps with the hammer to cause the head to conform to the wood, when, unless the head on its under surface complies with the surface on which it is to rest, the rapping down with the hammer causes a cutting into the fiber by the head of the bolt as though it was done by setting up the nut.

It frequently occurs that bolts with countersunk heads are necessary to produce the desired effect, sometimes the heads rest on the wood, sometimes on metal, the wood, or the plate, is frequently at an angle many degrees from the horizontal, unless the countersunk head fits properly in such places, it is prone to do much damage. If on wood, it frequently splits the wood; lifts up on one part and forms a good reservoir for water and dampness, which sooner or later produces rotting of the woods, also unless the bolt rests firmly at its head, on the substance on which it rests, it is continuously producing a loose nut, until the head finds a full and final rest.

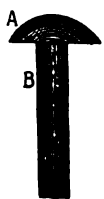


Fig. 1.

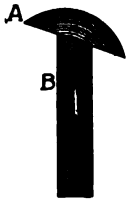


Fig. 2.

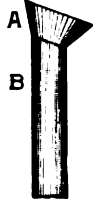


Fig. 3.

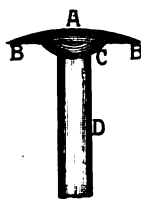


Fig. 4.

To attempt to force bolt heads while cold, to conform to the various shapes to which they are applied, is sheer folly. Many attempt fitting them in the vise when cold, which means loss of time, a driving in and out of the bolt many times before the right pitch is reached.

Another mistaken idea about bolt heads on the upper surface of rockers at the doorway and on the brackets, where the bolts are to be covered by trimming, is to countersink the bracket and the rocker and insert countersunk bolts, which more frequently than otherwise go below the surface and form good receptacles for the lodgment of water, which at once sets the rotting of the wood in operation. The object of countersinking is for no other purpose than to get the bolt heads out of the way so as to show a smooth rocker or bracket lining.

Having told about botching, etc., and how it is produced, we will give practical information on the subject, which, if followed, will prove alike useful and economical. Fig. 1 shows the plain round head bolt in its normal character. A, the head strictly horizontal on its under, or bearing surface; B, the stem of the bolt, absolutely vertical or at immediate right angles with the bearing surface of the head. If we wish to bring the bearing, or under surface, of the head to comply with some particular or specific bevel either on iron or wood, we heat and bend the head, A, Fig. 2, with bearing surface off the horizontal, B, the stem of the bolt strictly vertical, we have resort to what we term heading or bolt tools. For the present instance see Fig. 5; A, body of tool; B, the heading portion; C is the hole for the insertion of the bolt; the dotted lines, D, show line of the hole passing through the tool vertically. We heat the bolt at the head and fit it while hot to the beveled surface, B, which produces the desired effect.

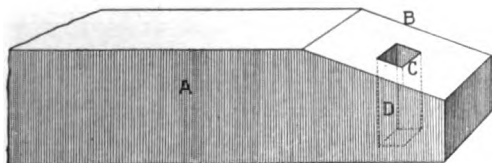


Fig. 5.

From the fact that these tools require to be made of iron only, with the working portion hardened by heating and cooling, which is an easy matter and inexpensive, the smith can have half a dozen tools, with bands of different bevels.

Fig. 3 shows a countersunk head bolt, with its head off the horizontal—A the head, B the stem. To attempt to reach such a shape with a countersunk bolt, in the vise, would be sheer nonsense, and if attempted cold would break the bolt at the juncture of head and stem. To produce the correct thing we resort to the tool, Fig. 6, which is like the tool, Fig. 5. A, the body of tool; B, the beveled section; C, the countersink and hole. The dotted line, D, shows the line of the

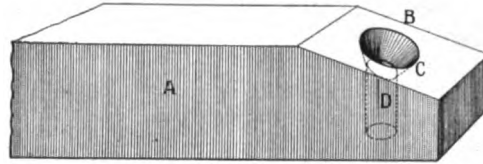


Fig. 6.

hole passing through the head of the vertical. If the bolt head be not countersunk, heat and insert in tool, and with hammer countersink and head at the same time. From the fact that this may be made of iron and hardened by heating and cooling, half a dozen of varied bevels would be inexpensive and of material value.

Fig. 4 shows a bolt suited to brackets and rockers, whether they are to be trimmed or painted. A, the upper or bounded surface of the head; B, the horizontal under bearing, which takes up about one-half of the bearing surface, one-fourth all around next the periphery; C, the countersunk portion on the under side of the head. To reach this condition, we proceed as follows, see Fig. 7. A, body of the tool; B, the upper surface, showing the countersunk hole D. The dotted line, C, shows hole passing vertically through the tool. To countersink this heading tool, make a flat shallow, or vise head countersink, and countersink the tool not more than one-eighth of an inch in depth. Make the tool of good ordinary steel, or of good iron, case hardening the working surfaces. Heat the bolt head and place it in the tool, first force well into the countersink, then hammer down the same as a dash bolt or step bolt. When this is done finish the head nicely with your file. Bore the holes with a clean cutting tool, a good twist drill preferred. Then use the same countersink with which the tool was countersunk, and countersink the rockers. Place a gauge on them if necessary so as to permit only space enough for the countersink, thus bringing an even heating on the countersink and the horizontal bearing. A small piece of leather

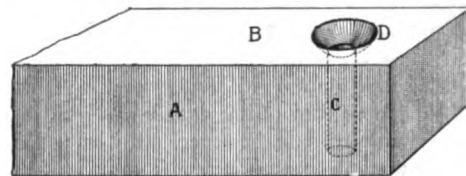


Fig. 7.

pasted on the under side of the heads gives a neat flat surface. No holes are formed for the collection of water; neither can the bolt be drawn down into the bracket or rocker.

WAGON PAINTING.

THE possibilities of the art of wagon painting are endless. All that is, or can be anywhere, can be on a business wagon. We do not mean to say that it is so now, for we are very sorry to say it is not, but it is possible to be, and it is not all unlikely that it will be some time. Few men can do a good job of wagon painting; very few can take a high class delivery wagon from the white to the finish as it should be done. The man that can well merits the title of artist.

Just for a moment glance at the requirements; see what is necessary to the proper painting of a fine omnibus, for instance. He who paints it must understand coloring in all its branches. He must have a complete knowledge of the harmony of colors. He must know all about glazing. He must be able to apply all the transparent tints, and have both a natural and cultivated taste for making harmonious combinations. He must be able to use black or white and any of the intermediate colors with equal felicity. In addition to all this he must be a designer; must understand decorative art in all its branches; must out-letter a sign painter; be an expert gilder; be able to paint fruit, flowers, landscape, marines, animals or portraits. In fact there is nothing in the heavens above or on the earth beneath that the wagon painter is not liable to be called upon to do.

In a great many shops the work is done in this manner: The man begins by giving the wagon a light sandpapering, then the gear

one coat of flesh color and one of vermilion. He paints the body green or something equally easy to apply; stripes it and then sends out for some one to letter and ornament it. After it has been ornamented in any way that happened to strike the painter's fancy, he gives it a coat of varnish and sends it out.

It is extremely difficult to see how such a man can claim to be a wagon painter. He did not paint it. His part of the work is not noticed (unless it is by his poor workmanship). All he did was to prepare the ground for the other man, the real painter. Some bosses complain that there is not enough money in the business to enable them to keep a good man in the shop. Well, there may not be enough so you can employ an expert at a fancy price, but why is there not enough to employ a good man at a fair price? This thing is constantly improving.

At the present time the man that cannot do a fair job at lettering and fancy work is handicapped. Many shops prefer to have their ornamenting done by their own men, and others are following suit. In all probability the wagon painter of the future will be a painter—not a preparer for some other painter. Sign painters' wagon lettering is not always just the thing on wagons, however nice it may look on signs. The best wagon letterer is the man that has a knowledge of wagon painting as well.

In some parts of the country there is no demand for good wagon painting. The inhabitants are utterly indifferent to anything of the sort. "They don't want it, anyway, and wouldn't pay for it if they did want it," is the way some of the men put it. But one finds that in most of these cases it is not the people but the carriage makers themselves that are to blame. Never having a man that could do fine work they naturally get used to the other thing.

We also find that when a man that can do fine work strikes these places the people do, after a little, want that kind of work, and are willing to pay for it, as it has been simply a case of not wanting what they couldn't have.

We know of one man; and he has charge of the paint shop, whose only idea of wagon painting was red gear, green body, striped and lettered like the last one. This for new work. On old work, the rule was to do it just exactly as it was done before. After a short time in such a shop a man would become a mere machine. That is not the right way, Mr. Carriage Maker; unless you are a painter don't try to run the paint shop at all. Hire the best man you can find, and give him full sway; then your work will be done better and cheaper than in any other way. When we see a blacksmith directing all the details of a paint shop we get an idea of how a painter would succeed attending to the details of a blacksmith shop. No wonder the paint shop does not pay.

Perhaps the wagon painter of the future will run his own shop. This scheme has its drawbacks, however, for it is not always that a good mechanic is a good business man. Time was when the coach painter rather looked down on the wagon painter. We do not know that it was to be wondered at; it's natural. One whose whole study in life has been to get nice, smooth marble-like surfaces finds it hard to look at it in any other light.

In wagon painting the aim has been to get fancy color combinations, nice designs in lettering and ornamenting, and let the finish go. So the average comment of the coach varnisher has been: "Yes; it looks pretty enough, but it is a miserable job of surfacing." Now these things are of the past; the business wagon of today must not only be tastefully decorated, but it must have a fine finish as well. Consequently wagon painting no longer takes a back seat.

Wagon panels are larger than coach panels, and the painter that does them successfully is fully the peer of any coach varnisher. One thing that has kept this part of the business back has been the lack of varnish, that could be put on the large panels, in good shape. Now improved varnish making methods have remedied this lack, and wagon painting is destined to take a high place in the trades.

It is a mistake to use cheap varnish on wagons; they have far more exposure to the weather and harder usage than the pleasure vehicles. Finishing varnish is not only a beautifier, but it is supposed to protect the undercoats, and it is a mistake and a waste to cover a job with nice ornamenting and then send it out without a good protection. Use just as good a varnish on wagons as on coaches—better, if you can get it—then you will find that your costly ornamenting will stay, your customers will sing your praises in public places and your trade will wax big.

It is with bachelors, as with old wood, it's hard to get them started, but when they do take flame, they burn prodigiously.

SWORD LINERS.

ONE of THE HUB's subscribers away off in New Zealand writes us regarding sword pencils for striping such work as we here illustrate. He asks us to forward him pencils such as are used by the best strippers in New York, as he is anxious to do the best work. He also says: "We use quick lining colors, mostly vermilion for buggies, mixed with gold size, and turpentine. If you can give me any trade tips as regards mixing quick lining colors so that they will hang well to the work yet run free, I will be thankful." As questions of this character are likely to arise in every shop we give the following pointers to readers of THE HUB:



SWORD LINER CUT DOWN.

The sword pencil is all right if you use the point only, but it requires much practice before a man can master it. Our most expert strippers generally make up their sword pencils in length and other propositions to suit themselves. They take the hair from round or flat camel's hair pencils and flatten out and arrange the point as they may wish, then secure the ends and insert the stub end in the split end of the handle and wrap firmly. Or they procure a sword pencil ready made and cut down to the desired proportions, as illustrated herewith, by the drawing of a pencil given us by a New York stripper.

If much cut up work is done in striping the pencil used should not exceed 1½ inches in length. A round pencil is best for such work, but it is impossible to do good work with a pencil over two inches long. Never use the same pencil for long, straight lines that you use for short work.

In regard to quick drying colors, we would advise the adding of a few drops of new linseed oil to the colors; it causes them to work freer and does not slide, as gold size alone does. Also add a little orange yellow to your English vermilion, as it improves the working but be careful not to add enough to discolor the red.

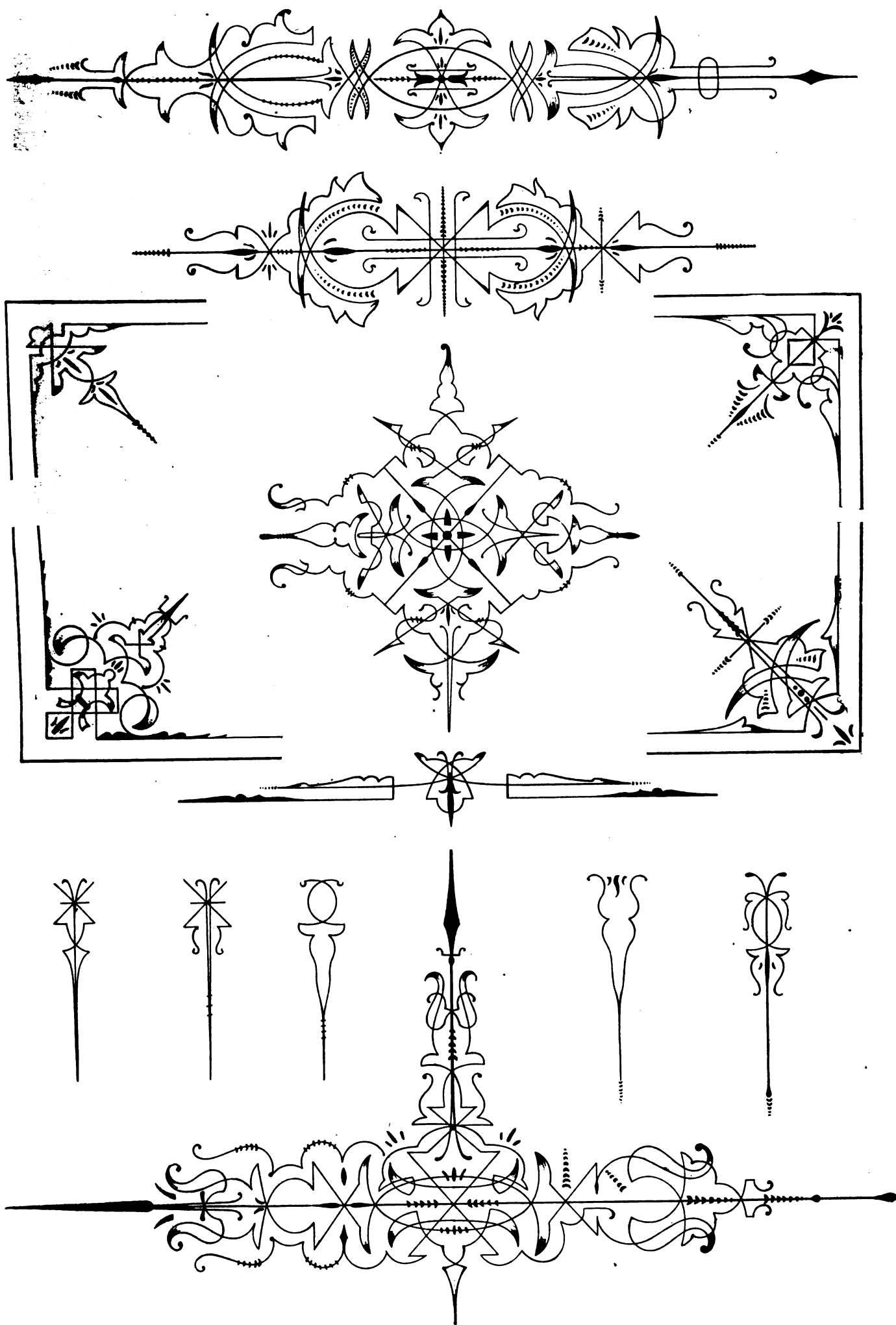
PAINT AND VARNISH REMOVERS.

For a considerable length of time carriage painters have been engaged in discussing the merits of paint and varnish removers, as compared to the old time method of burning off with a hand torch or lamp. It is plainly evident that a large class of carriage painters are anxious to find a substitute for the burning lamp or torch—something that will remove the paint and varnish in an easier, speedier and more economical way.

Here and there a carriage painter rises up occasionally to explain that spirits of ammonia, generously applied to a surface and permitted to remain for a few minutes, will soften the paint and varnish sufficiently to allow removal with a broad putty knife, handled as one would in following the burning torch. Repeated applications of ammonia are necessary to effect the removal of the paint and varnish fabric as a whole. Considering this process most charitably it must be classed as a laborious and expensive item of work. Scraping the varnish off with the regulation hook scraper, as it is done in railway coach shops, is another method too expensive to be practical largely in the carriage paint shop. Moreover, in the hands of one not strictly an expert, the hook scraper cannot be numbered as a dependable tool. In respect to the patented varnish removers, which are now finding a large use in the railway paint trade, it may be said that they are powerful enough in their action upon paint and varnish to do the work required, provided the surface to be acted upon can be submerged in the liquid. The modern varnish removers, such as is supplied by two or three great establishments in this country, are composed of materials which are mighty in strength and smell to heaven. And this latter property has been a tremendous handicap to its general use in both carriage and railway paint shops.

It has been the writer's business, among other duties, to examine the advantages of certain widely known varnish removers, some of which have come to hand recommended as odorless. On the whole, and speaking candidly, it may be said that the so called odorless removers have been afflicted with more nauseating perfumes than those carrying no special recommendations upon this point.

(Continued on page 498.)



FINE LINE DESIGNS FOR BUSINESS WAGONS.

PAINT AND VARNISH REMOVERS.

(Continued from page 496.)

To handle paint and varnish removers of the liquid variety, a large tank will be necessary, and enough of the liquid is needed to afford facilities for immersing such parts of a vehicle as invite treatment. Saturating pieces of burlap and applying these to the surface will enect the removal of shellac and varnish from such parts as cannot be submerged in the tank, but speaking from experience, we do not expect this process to give satisfaction in carriage work. It is not sufficiently simple and direct. It lacks the merit of being quick and clean in results. Whenever the remover can be used in a vat, in bulk, and the surface from which the paint or varnish is to be taken, is immersed in the liquid, the work is rapidly, surely and completely accomplished. As against this and all other processes of removing paint and varnish, the paint burner stands out conspicuously in the foreground as an essential part of the carriage paint shop equipment. The paint burner, skilfully handled, affords quick results at a minimum of expense. It leaves the surface well conditioned to receive the new structure of pigment and varnish. There is no dead or poisoned surface to build upon, but rather a new foundation, full of life and vital in every part.

NEAT TRIMMING DESIGNS FOR SURREYS AND DEPOT WAGONS.

Fig. 1 illustrates the style of the back, which is made with narrow plaits between the rolls. The back is made up on a frame and spaced off for eight rolls with two rows of tufts spaced off to suit the depth of the back. Lay off the cloth for the back with $1\frac{1}{8}$ in. fullness between each tuft across the back, and a $\frac{1}{2}$ in. fullness in the length of the rolls. Stretch out $\frac{3}{8}$ in. of the fullness on the face side of the cloth, is to form the plaits between the rolls, which leaves $\frac{1}{4}$ in. fullness for the width of the rolls. Tack out the cloth on the bench and press out the plaits with a warm iron. The fullness at the top

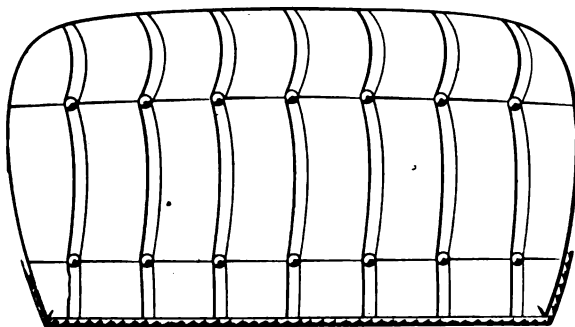


FIG. 1. BACK.

and bottom of the back must be worked out under the plaits, to get a smooth surface between the plaits. The rest of the work is rapidly understood. It is the narrow plaits between the rolls which is the point for explanation.

Fig. 2 represents one of the side quarters with arm rests. Make up the quarters on a stiff, rough lining in the same manner as the back so far as the plaits and tufts go. Make the arm rests on a rough lining with two ply of buckram and one piece of this canvas well pasted together. Shape out the rough lining as shown in the sketch.

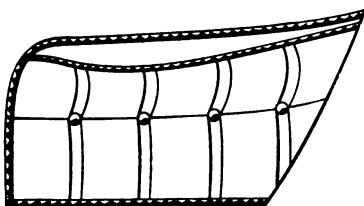


FIG. 2. SIDE QUARTER.

Draw the cloth over plain and form a thin roll. Finish the inner edge with a cloth binding and the outer edge with the seaming and pasting laces around the back and quarters.

Fig. 3 represents the style of the cushion. There is very little to explain about the makeup of the cushion except on one or two points. It has no front facing, which is the style at present with jobs that have squab quarters and full backs. Reinforce the front of the bottom with leather $\frac{3}{4}$ in. wide, the top to have the same fullness cross-

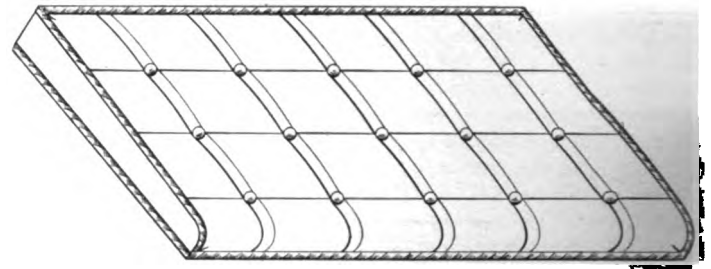


FIG. 3. CUSHION.

wise and be plaited the same as the back. It is best to make this kind of cushion top on a frame.

Make the backing for the fall with canvas and one ply of buckram well pasted together, shaped to fit in between the rockers. Make the border around the fall with rug carpet or felt goods. Make the three plaits in the same manner as the narrow plaits in the back.

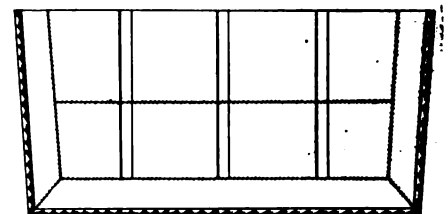


FIG. 4. FALL.

Place sheet wadding over the backing and trim edges away from the border. Apply paste along the inner edge of the border, also along the outer edge. Draw the cloth over and work down around the border and the top. Baste the cloth down along the center line of stitching. When the paste is dry stitch the face through the center and the inner edge of the border, bind the outer edge of the fall.

MISFIT RUG CARPETS AND THE REMEDY.

It very often happens in cutting rug carpets, for contracted rocker work, for such vehicles as broughams and victorias, a mistake has been made in fitting around the contracted part of the rocker, the carpet being too scant, and if bound in that condition would be a serious fault. A good plan is here suggested to overcome the mistake and to save expense of the cutting of another carpet.

Trim off from the scant part say one-quarter inch from each side of the carpet, shear off the edges and paste a strip of muslin on the back of the carpet extending one inch from the edge; the muslin to be pasted over and a piece of seaming cord placed on the muslin close to the edge of the carpet, the muslin being carefully turned over the cord and pasted down along the sheared edge of the carpet. The paste must be thoroughly dry before the edges are bound. By this process full five-eighths inch is added to the width of the carpet.

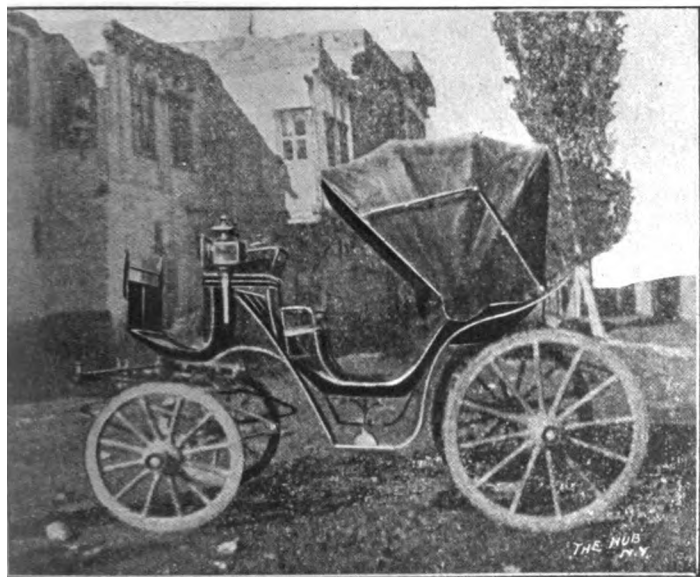
PILLAR HOLDERS.

THERE are several ways to make pillar holders ready for the loops and frog, but which is the neatest and quickest way to make them ought to interest the trimmer. The following plan is suggested for its simplicity and neatness:

Cut the lace off the length of the holder, calculate the width of the lining piece to extend over the lace, fold and press the edge down with a warm iron, if it is cloth; if leather, press down with the slicker. Paste one edge of the lace to the lining piece and stitch close to the edge of the lace on the machine; cut wadding the width of the lining piece, also a piece of thin canvas the same width; lay the wadding on the lining piece and the canvas on top of the wadding, with the black side up; paste the edge of the lace and lay it on the fold of the lining piece. When the paste is dry sew the edge of the lace to the lining piece with a thread to match the machine stitching. Withdraw the canvas piece and the holder will be ready for the loops and frog.

CARRIAGES IN TURKEY IN ASIA.

VICE-CONSUL OJALVO writes from Erzerum, October 24, 1901, that there is an opening for trade in carriages in that district. At present, the Russian vehicle monopolizes the market, inasmuch as it is made strong enough to resist the rough roads of the country. The cost is from \$200 to \$250, delivered at the frontier. He sends a photograph (see cut) to give an idea of the vehicle in use.



CARRIAGES IN TURKEY, IN ASIA.

Petroleum automobiles, the vice-consul thinks, can be readily introduced in that country if they are strongly made and cost about \$300 or \$400 for four seats. The ox cart, which was the favorite means of traveling for the people in Asia Minor, is now almost neglected, and the carriage is taking its place.

PROPOSED FINISHED CARRIAGE EXHIBIT IN PHILADELPHIA.

The following resolutions and protest has been received by THE HUB from the secretary of the Carriage and Wagon Builders' Association, of Philadelphia, which reveals the feelings of dealers and manufacturers in that city regarding exhibitions of finished carriages. They evidence, as well the growing antagonistic feeling against such exhibits, which is beginning to assume proportions that threaten their continuance:

RESOLUTION.

WHEREAS, It is currently reported that an exhibition of finished vehicles, under the management of outside parties, is in contemplation for this city during the fall of 1902; and

WHEREAS, Such an exhibition would strike directly at the welfare of all our local builders and dealers; therefore, be it

Resolved, By the Carriage and Wagon Builders' Association of Philadelphia, that all members of this body be requested to at once communicate with all manufacturers of vehicles and of accessory parts thereof, with whom they are accustomed to deal, protesting against such exhibition, and requesting them to take no part in it; and be it further

Resolved, That in such communications they are authorized to say that their actions meet with the unanimous and emphatic approval of this Association.

PHILADELPHIA, PA., January 6, 1902.

V. T. VAN FLEET, ESQ.,

President National Carriage Dealers' Protective Association,
Somerville, N. J.

DEAR SIR:—There has been floating about Philadelphia for some time a rumor to the effect that your association contemplates holding a finished-vehicle exhibit in this city during the autumn of 1902. Not wishing to give credence to an idle rumor we have taken pains to look up the matter, and learn that the report is probably correct, in view of the fact that efforts have been made to secure for that purpose the only available hall hereabouts.

Quite naturally Philadelphia carriage and wagon men feel deeply concerned in the matter. We have an association of something like 200 members, and at a recent and largely attended gathering we, whose names are hereto affixed, were appointed a committee to communicate with you and present what we regard as good reasons why the proposed exhibition should not be held.

Of course, you are aware that such exhibits can hardly fail to injure carriage and wagon builders and dealers in the immediate locality in which they are held. The Carriage Builders' National Association at one time considered the feasibility of undertaking such enterprises, but abandoned the project when it became known that it would work serious injury to the local carriage men. Indeed, we are advised that even in the great city of New York, where it would seem such an exhibition would seem less harmful than elsewhere, the dealers have been injured to such an extent that they are very anxious that no further exhibit should be held.

We stand on record as being favorable to dealers' associations, and are ready to do all in our power to make them helpful to the trade at large. But we are strongly of the opinion that the exhibition of finished vehicles in any city should be left to the dealers who are doing business in that city, if held at all. Our reason for this is that if anything like an exhibition of a national character is held, there is a strong temptation to manufacturers who place their goods on exhibit to offer them at a somewhat reduced rate, either to the trade or to individual buyers, rather than ship them back to their factories. As is well known, instances of this kind have occurred to the serious injury of local dealers. You are, doubtless, aware also that at such exhibitions, though the general public are excluded, a good many men manage to get in who are not dealers in the sense of the word that you are, but who succeed in getting prices quoted by manufacturers who do not know them, and who afterward greatly injure the trade by cutting prices. We might add as a special reason why no such exhibit should be held in Philadelphia, that there is here a mercantile tax law which would make it very expensive for manufacturers and add unnecessarily to the price of vehicles.

In view of all these things, we respectfully request that as president of the Protective Association you will give the matter careful personal consideration and use your influence to prevent an exhibition in this city at the time named.

We remain, dear sir, yours respectively,

B. FRANK DUFFIELD,
FRANK SCHANZ,
H. F. KEACHLINE,
Z. TAYLOR RICKARDS,
CASPAR KENDALL,
Committee.

PHILADELPHIA, January 20, 1902.

TO THE NATIONAL CARRIAGE RETAIL DEALERS' PROTECTIVE ASSOCIATION:

GENTLEMEN:—It is currently reported in this city and vicinity that you propose holding an exhibition of finished vehicles in Philadelphia during the autumn of 1902. On the supposition that this is true, we, the undersigned, all of whom are either carriage or wagon builders or dealers, or persons engaged in accessory lines of trade, beg leave to submit this our earnest protest against the holding of such an exhibition.

We can discern no way in which it will benefit us, but we can see many ways in which it would work to our serious harm. When the matter of holding exhibitions of finished vehicles in connection with the meetings of The Carriage Builders' National Association was being considered, a large majority registered themselves against it, on the ground that it was unfair to local dealers and utterly demoralizing to the trade. The National Association so thought and concluded, and no such exhibition has been held under their auspices. Shall they be careful not to infringe upon the rights of local associations, and shall a great organization like The National Retail Dealers' Protective Association treat their brethren in the trade so unfairly? If so, the word "protective" hardly belongs in their title. We cannot believe that if it is known how we feel about it, you will further contemplate the holding of such an exhibition. We most earnestly request that the whole matter be dropped where it is.

Respectfully,

C. Kendall, Kendall Carriage Co., 218 North Broad street.
Frank W. Shriver, The Gregg Carriage Co., Arch and Twelfth streets.
C. Schanz & Son, 408 Randolph street.

Wm. Rodenhausen, 1432 North Ninth street.
 Thos. Barrett, Manheim street, Germantown.
 Emile Insinger, 528 Carpenter street, Germantown.
 John S. Gerhard, 2545 Germantown avenue.
 R. M. Braithwait, Wm. Perry, Broad and Mt. Vernon streets.
 Henry L. Jacobs, J. Sims Wilson, 676 North Broad street.
 John K. Hipple, Cortland Wagon Co., Broad and Race streets.
 Van L. Wolf, Cortland Wagon Co., Broad and Race streets.
 Wm. B. Morgey, 1747 Cambridge street.
 Chas. J. Rogers, Wm. D. Rogers Son & Co., 329 North Broad street.
 Chas. Betz, Jr., Charles Betz, 1825 North Sixth street.
 August Geissel, Jr., A. Geissel & Sons, 487 North Third street.
 Geo. W. Garrett, Garrickson & Garrett, 3910 Spring Garden street.
 Louis A. Oehme, 3045 Richmond street.
 Chas. Breininger, 4550 Richmond street.
 Z. Taylor Rickards, Ketter Mfg. Co., Twentieth and Filbert streets.
 Charles L. Schwarz, 319 North Broad street.
 Jos. F. Mitchell, Mitchell & Krespach, 2213 Callowhill street.
 John E. Wenger, Wenger Carriage Works, 1109 Spring Garden street.
 Wm. P. Brenz, Chas. Brenz & Co., southeast corner Thirty-seventh and Filbert streets.
 Edw. Sowney, Sowney Bros., Girard and Frankford avenues.
 The Media Carriage Works, per Wm. Johnson, Media, Pa.
 Oliver Bright, carriage builder, 1712 Christian street.
 George Waldman, carriage builder, 84 West Johnson street, Germantown.
 Harry J. Wolfington, Alex. Wolfington & Sons, 8-14 North Twentieth street.
 Wm. H. Petzelt, Petzelt & Keyser.
 Richard Crankshaw, 1412 Adams street, Frankford.
 Wm. B. Byers, Sandiford, Phila.
 Frederick Fischer, Jr.
 Fischer & Sons, 1643 North Twelfth street.
 C. J. Preisendanz, 526 New Market street.
 John Dengelden, 1925 Pine street.
 Conrad Seeger, 1525 Ridge avenue.
 Collings Carriage Co., 1613 Chestnut street.

PLAN AND SCOPE OF THE INTERNATIONAL EXPOSITION AT ST. LOUIS IN 1903, AS ADOPTED BY THE BOARD OF DIRECTORS.

CELEBRATING THE CENTENNIAL OF THE LOUISIANA PURCHASE.

PLAN.

WE publish herewith the plan and scope of the World's Fair to be held at St. Louis, Mo., from advanced pages of the official manual of the State of Missouri, which were kindly forwarded us by Samuel B. Cook, Secretary of State:

The foundation plan of the St. Louis World's Fair will be that of an exposition both national and international in its character, so that not only the people of the Louisiana Purchase Territory, but of our union, and all the nations as well, can participate. It will be so projected and developed as to insure the active interest of all the peoples of the world and induce their participation upon a scale without parallel in any previous exposition.

It will present in a special degree, and in the most comprehensive manner, the history, the resources, and the development of the States and Territories lying within the boundaries of the Louisiana Purchase, showing what it was and what it is; what it contained and produced in 1803; what it contains and produces in 1903.

It will make it plain that the prophecy of 1803 has been more than fulfilled, and show that a veritable empire now lies between the Gulf of Mexico and Puget Sound, within the limits of the territory Jefferson obtained by the Louisiana Purchase.

It will show the history, resources and development of the possessions of the United States, including Porto Rico, Alaska, Hawaii, Samoa, Guam and the Philippines. It will embrace in a similar portrayal Cuba and any other country which may enjoy the special and exceptional protection and guardianship of the United States.

It will depart from the plan of all past expositions and make life and movement its distinguishing and marked characteristics. To

this end it will aim definitely at an exhibition of man as well as the works of man; at the presentation of manufacturing industries in actual conduct as well as of the machines out of action; at the exhibition of processes as well as of completed products.

It will carefully plan in the location, the construction and arrangement of all buildings and works so as to assure the highest degree of convenience, ease and comfort for visitors who come to inspect the wonders contained within its enclosure. It will make it both easy and comfortable to get to the exposition grounds from every quarter of the city and from every railway terminating in St. Louis. It will in like manner make it easy and comfortable to move about the exposition grounds, and to pass from building to building and from point to point within every building of large area. In short, it will make the transportation of visitors the subject of special study and spare no expense in the solving of this vital problem, so that the St. Louis World's Fair may go down in history as the first great international exhibition which a visitor could inspect without enduring fatigue and hardship.

Finally, it will embody and illustrate the latest and most advanced progress in the employment of the energies of nature. It will be up-to-date in the use of all new motive forces, and be fully abreast with science in the utilization of every novel invention or discovery that has practical value.

SCOPE.

In order that the general plan outlined for the Louisiana Purchase Exposition may be fulfilled in its actual accomplishments, it will exhibit the arts and industries, the methods and processes of manufacture of the whole world; it will gather the products of the soil, mine, forest and sea from the whole earth.

It will comprehend man in his full twentieth century development, exhibiting not alone his material, but his social advancement. It will show humanity at rest as well as at work, presenting man in his hours of recreation, his exercises, his games and his sports. It will illustrate the modern home with the infinity of comforts and conveniences that have been brought into common use within the century the St. Louis World's Fair will commemorate.

It will embrace in its scope a comprehensive anthropological exhibition, constituting a congress of races, and exhibiting particularly the barbarous and semi-barbarous people of the world as nearly as possible in their ordinary and native environments.

It will bring together the wild life of the forests, plains and waters, showing visitors a zoological collection of untrained and untamed animals as nearly as practicable with the surroundings of their native state.

The progressiveness of the exposition will be most especially manifest in the manner and extent of its use of artificial light, both for purposes of illuminating and as a means of decoration. Electric lighting in the latest, most striking and most effective form, as well as all other new and efficient modes of illuminating, will be so liberally employed that the exposition grounds and buildings will blaze with light at night, and their beauties successfully rival the attractions of day light.

For the development of the exposition to full scope outlined, it will provide for the housing and care of exhibits divided into a number of grand sections, each of which will be again divided into departments and sub-departments. The principal sections into which the exposition will be divided will be as follows: Agriculture, anthropology and ethnology, athletics and outdoor sports and games, chemical industries, civil engineering, colonization, decoration, furniture, etc., diversified industries, education and instruction, electricity, fine arts, food stuffs, forestry, history, horticulture and arboriculture, liberal arts, machinery, military and naval, mining and metallurgy, social economy, textiles, transportation, wild animals.

AMERICAN EXHIBITION, CRYSTAL PALACE, LONDON, MAY TO SEPTEMBER, 1902.

THE advisory committee, consisting of eighteen members of the Council of the American Society in London, and twelve members of the American Society in London, together with four of the representatives of English nobility, headed by the Right Hon. the Lord Mayor of London, will be one of the London attractions during the coming summer.

The American Exhibition, 1902, is designed to demonstrate the immense commercial development which has taken place in the United States of America during recent years, and will be the largest and most important exposition of exclusively American products, arts,

industries and inventions yet seen in the United Kingdom. The increase of American exports for the past twenty years has been phenomenal, and the expansion in the character and variety of the trade is perhaps even more remarkable than the growth in its volume.

With a population of about 80,000,000, and a climate ranging from Arctic Alaska to the tropical South—with their vast natural resources, and their great industrial wealth and activity, the United States of America offer a wider scope than any other individual country for a great national exposition.

The natural advantages of the Crystal Palace for the accommodation of great exhibitions are well known. The buildings cover sixteen acres, all perfectly lighted, heated and ventilated—surrounded by the most beautiful ornamental grounds in Europe, extending over 200 acres, and including the most extensive series of sporting grounds in England, for cricket, polo, football, baseball, cycle and motor racing, tennis, swimming and other athletic sports. The regular programme of entertainments and sports, is—like the annual attendance of visitors—upon a greater scale than anywhere else in the United Kingdom. The jubilee of the first great international exhibition, 1851, held in the Crystal Palace, has been celebrated this year by the naval and military exhibition opened on May 23 by Field Marshal Earl Roberts, K. G., which has been attended by the largest number of visitors during recent years.

The year 1902 will be marked by an historical event—the coronation of King Edward VII., in the month of June—which will draw to London the greatest number of visitors from the provinces and abroad ever before known. In the popular celebrations which will take place throughout the empire, the Crystal Palace will take the lead. No more auspicious time and place, therefore, could have been selected for a great exhibition, and from the support already forthcoming a complete success is assured. During the period of the exhibition a number of the best American entertainments and shows will be added to the regular programme of attractions at the Crystal Palace. It is intended also to engage one or more of the leading American bands. The exhibition is certified by the Board of Trade under the provisions of the patents, designs and trade marks act, 1883.

In connection with the exhibition a commercial bureau will be established where all necessary information will be supplied to exhibitors as to channels of trade, and the placing of goods upon the British and continental markets. The bureau will be under the direction of a committee of representative American and British firms. Special juries will be selected to adjudge upon the merits of exhibits and diplomas and medals will be awarded. For the convenience of exhibitors arrangements will be made with a well known firm for the supply of approved stands or cases for exhibits, either to order or on hire, at moderate rates, but exhibitors are at liberty to make their own arrangements in this respect. Special low rates have been secured for transportation covering all through charges to Exhibition Hall and if desired reduced return rates will also be granted.

For plans and particulars of space apply to Messrs. Alfred H. Post & Co., Produce Exchange, New York.

CLASSIFICATION OF EXHIBITS.

Class I.—Machinery and mechanical industry—(a) Mining, agricultural, printing, electrical, traction, haulage, etc. (b) Shipbuilding, locomotives, railway and tramway engineering and equipment. (c) Automobiles, bicycles, typewriters, sewing machines, laundry, domestic and other labor-saving appliances, etc. (d) hardware, tools, and cutlery.

Class II.—Natural and agricultural products, including cotton, timber, mineral ores, wool, tobacco, etc.

Class III.—Prepared food products, including canned and other goods, condiments, confectionery.

Class IV.—Pharmaceutical and kindred preparations, surgical appliances, drugs, perfumery, etc.

Class V.—Carriages, vehicles, harness, furniture, leather goods, stationery, etc.

Class VI.—Hygiene, lighting, heating, ventilating, and sanitary appliances.

Class VII.—Textiles, fabrics, clothing.

Class VIII.—Musical instruments, photographic and optical apparatus and material.

Class IX.—Education and science.

Class X.—Naval and military, ordnance, ammunition, small arms.

Class XI.—Arts, painting, sculpture, engraving, lithography, architecture and decoration.

REPORT OF MEETING OF COUNCIL OF THE INSTITUTE OF BRITISH CARRIAGE MANUFACTURERS (INCORPORATED).

HELD AT THE WESTMINSTER PALACE HOTEL, LONDON, S. W., ON THURSDAY, THE 21ST NOVEMBER, 1901.

MR. PERCY PRESTON, London, in the chair.

In attendance: H. E. Perrin, secretary.

Minutes of meeting of Council held 17th October, 1901, were confirmed.

PRESIDENCY, 1902.

It was unanimously resolved to nominate Mr. Harold Thorpe, of Tunbridge Wells, as president for 1902.

PETITION TO HIS MOST GRACIOUS MAJESTY THE KING.

The following petition was presented to His Most Gracious Majesty King Edward VII. on the 19th inst.:

To His Most Gracious Majesty King Edward VII.

MAY IT PLEASE YOUR MAJESTY:—This Memorial of your humble servants, the Council of the Institute of British Carriage Manufacturers (Incorporated), sheweth that the use of suitable Carriages by the Nobility and others attending State Ceremonials has been allowed in some degree to fall into disuse. Your Memorialists humbly pray that Your Majesty will be graciously pleased to express the desire that all those having the privilege of access to the Royal Presence shall use, for their conveyance, equipages befitting their rank, and more in accordance with the high example of Your Majesty's State Carriages, and those used by the Members of the Royal Family.

They feel that any retrogression in the external evidence of dignity, with relation to any public event in which the person of Your Most Gracious Majesty is concerned, would be detrimental to the loyal character of our Nation, and to that support of the Throne which should be the pride and glory of every subject throughout your Majesty's Dominions.

And Your humble servants will ever pray.

ALEXANDER NAUGHTY, *President.*

30 Moorgate street, London, E. C.

November 19th, 1901.

ROAD TRACTION TESTS.

The attention of the Council was drawn to a letter which appeared in a recent number of the *Carriage Builders' Journal* on the above subject. The matter had been brought before the British Association at their closing meeting at Glasgow, when it was proposed to appeal to the public for funds for the purpose of ascertaining the resistance of the road to traction. The secretary was instructed to communicate with the British Association, and ascertain what steps they proposed to take.

ANNUAL GENERAL MEETING.

The date of the annual general meeting was altered from Wednesday, the 22nd, to Tuesday, the 21st January, 1902. It was also arranged that the annual dinner take place at the Trocadero Restaurant on the same evening, and a sub-committee, consisting of the president (Mr. Alexander Naughty), Mr. Percy Preston, and Mr. W. E. Sampson, be formed to carry out the arrangements.

Secretary's Office: 30 Moorgate street, London, E. C.

December 2nd, 1901.

NEED OF A FOREIGN PARCELS POST.

"A FOREIGN parcels post is a growing necessity to the manufacturers of the United States," declares the *New York Independent*. "At present the regulations of the postal service reject any packet of samples of merchandise having a salable value. No complete article can be sent as a sample; only one glove of a pair or one shoe. The postage rate amounts to \$1.60 for a pound package, or \$16 for ten pounds. For example, take the case of a company which received a small order from a correspondent in the Argentine Republic. The packet weighed only three pounds, but the express charges were \$6.30. The British postal guide shows that, under the British flag, this package could have been sent to the same party for 57 cents. Another case was that of an English merchant who ordered a bill of goods from an American house in Minneapolis. The purchase price was \$9.30, the transportation charges \$14.35. 'Need any wonder then that the American control of the foreign markets of the world is slow when such obstacles as these are to be met?' At present we are not able to reach the interior towns of South America by any means at our command. In other words, we must send our goods to

a town on the coast, and the consignee in the interior must send to the coast to get them. This is practical prohibition of all trade between the two countries in small packages. Give us a foreign parcels post similar to that enjoyed by our European competitors, and we can rapidly enlarge our trade with South America. The Postmaster-General, by and with the consent of the President, has power to negotiate a parcels post convention with any foreign government at his own discretion. We have negotiated such conventions with Mexico and some of the republics of Central America, and the West Indies. There is also in operation a treaty with Germany involving a parcels post, very much to the advantage, however, of Germany."

NOTES BY A TRAVELLER.

BEAUMONT, the "Texas Oildorado," promises to become one of the leading consumptive and shipping centres of Southern Texas, at least. The oil boom has thrown a mint of money into this district and the result will be a big modern town, substantial enough, after the oleomania has worn down to commercial soberness. At present three dealers are doing business here, two exclusive houses, and one hardware house. Perlstein is the Nestor of the trade, occupying spacious quarters of his own, the stock comprising every popular standard in the South, in vehicles, harness and saddlery. The Mitchell wagon is specialized.

Swift & Caffal is the new firm to succeed the local branch of the Lake Charles C. & I. Co., Ltd. Mr. Caffal is the hold-over manager of the old concern, Mr. Swift confining his duties to the home concern at Lake Charles. The stock is modern in all branches, Old Hickory being the leading farm wagon.

The Wilson Hardware Co. deals chiefly in farm wagons and implements, carrying a very good assortment.

J. Harmon is the only dealer at Orange, Tex., one of the leading lumber centres of Texas and has been in business seventeen years. Mr. Harmon has succeeded in building up a fine trade in all branches of the business. For the past year he has been agent of the Studebaker wagons.

An association of the dealers of Louisiana, Texas and Mississippi is on the tapis, but the movement will hardly materialize before the State associations have been perfected. And here is where earnest work should begin at once. This is necessary from a general trade standpoint as well as for the reason of forestalling disintegration, for more than a reasonable quota of the trade has been absorbed by extraneous sources.

W. E. Patterson, of the Crowley C. & I. Co., Ltd., deems a retailers' alliance feasible, if on an interstate plan, but fears the Louisiana dealers, few as they are, are too strongly individualized to become cohesive. This company controls six branches in various localities, and this rule obtains largely throughout Louisiana. Small dealers are as a rule too inert to take an active part in association work.

W. H. Richardson, Sr., Austin, Tex., president of the State R. D. H. & I. A., reports a fairly satisfactory volume of business for the year, not as large as anticipated, owing to the various agricultural disasters. The trade, however, has not been materially affected by the slump.

The combination buggy, the vehicle that may be readily changed from a top buggy to an open driving wagon, is meeting with general acclaim in the South.

Kansas City is sorry to lose the K. C. Buggy Company's plant, but the owners' decision as to removing to Cincinnati is final. Manufacturers have learned that centres of manufacture are the most advantageous from a trade and profit standpoint, no matter what distance from the markets sought after. The railroads have long solved the problem of fast and safe long distance shipments.

L. H. Burks & Son, removed from Fairbury, Neb., are about to open a retail carriage and hardware establishment at Houston, Tex.

Advertising pays; good, persistent advertising backed up by merit that shows in wear and tear. There are scores of examples to model after, but having delivery wagons under review, I would particularize the Armleder Company, of Cincinnati. Theirs are nationally conceded to be honest wagons. Just think how much that means for the individual, as well as for the Cincinnati trade entire.

The Coquillard, South Bend, wagon is a growing favorite in the South.

J. F. Meyers Co., Houston, Tex., report a good volume of business for the ten months. The "Jackson" wagon is the specialty, this vehicle being also a favorite in Waco, and Ft. Worth territory, where it is handled by W. O. Brown and F. W. Lehbrick, respectively.

TARIFF OF AUSTRALIA.

CONSUL-GENERAL BRAY sends from Melbourne, October 12, 1901, copy of the customs tariff of the Commonwealth of Australia, which went into operation October 8, 1901* Mr. Bray says:

It will be some time before the tariff passes the Federal Parliament. The schedules, however, take effect on the day of introduction into Parliament, October 8, 1901, and duties will be required to be paid in accordance therewith. If, however, any schedule should be amended or modified in any manner before the final passage of the tariff bill, the importer will be compelled to pay any increases and will receive any reductions made.

THE TARIFF.

To come into operation on the 8th of October, 1901, at 4 p. m., Victorian time.

All goods to be free if not included among dutiable goods.

All imitations to be dutiable at the rate chargeable on the goods they imitate, unless such rate is less than the rate which would otherwise be chargeable on the imitations.

The following are of interest to the carriage trade:

Dutiable goods.	Duty.	Special exemptions
Linseed per cental...	2 0 .486	
Blankets, blanketing, rugs, lap dusters, and rugging; carpets, carpeting, floor cloths, and mats, n. e. i., floor coverings (including felts and pads), and carriage mats.	20 per ct.	
Blacking, including dressings, soaps, oils, inks, pastes, polishes, stains, and varnishes for leather; Berlin and Brunswick blacks, furniture oil, paste and polish, and bronzing and metal liquids, ad valorem.	20 per ct.	
Greases, axle, and thickened or solidified oils; solid or viscous compounds for lubricating, and tallow, unrefined, per cwt.	4 0 \$0.97	
Paints and colors, viz.: Ground, in liquid, partly or wholly prepared for use.	(*) (*)	
Colors dry, dry white lead, and patent driers and putty, per cwt.	1 0 .243	Colors, artists'. Dyes, dry, not packed for retail sale.
Varnishes, varnish stains, lacquers, enamels, japans, liquid sizes, patent knotting, oil and wood finishes, petrifying liquids, damp wall compositions, and lithographic varnish.	(†) (†)	Lamp, ivory, bone, and vegetable blacks. London purple and paris green. Sulphate of copper. Ultramarine blue. Whiting.
Timber, viz: Timber, dressed, per 100 superficial feet.	3 0 .73	Timber, viz.: Undressed—Ash. Hickory. Oak. Walnut.
Timber, undressed, in sizes of 12 inches by 6 inches (or its equivalent) and over, per 100 superficial feet.	1 0 .243	Elm hubs, with or without metal bands. Logs, not sawn. Shafts and poles, sawn or bent, but not dressed. Spokes, rims, and felloes of hickory, in the rough.
India rubber or other hose, and manufactures, in which india rubber forms a part, including cycle and vehicle tires, ad valorem.	15 per ct.	
Leather manufactures, n. e. i., leather cut into shapes, harness, razor strops, footballs and parts thereof, and whips, including keepers, thongs, and lashes, ad valorem.	20 per ct.	Harness, saddles, and whips; minor articles for: Mountings, including hames, bits, and stirrups (not plated). gold, or silver.
Vehicles, viz: Barouches, broughams, landaus, victorias, mail phaetons, drags, and similar vehicles.	(**) (**)	
Express wagons, wagons for carrying goods, single or double seated wagons, four-wheeled buggies—mounted on springs or thorough-braces and without tops.	(††) (††)	
Hansom cabs; also single or double seated wagons, wagonettes, and four-wheeled buggies, with tops.	(*) (*)	
Omnibuses and coaches for carrying mails or passengers.	(†) (†)	
Tilburys, dog carts, gigs, Boston chaises, sulkies, and other two-wheeled vehicles—on springs or thorough-braces.	(‡) (‡)	

* 8d. (16 cents) per cubic foot (measuring outside the packages as imported) and 15 per cent. ad valorem.

† For purposes of measurement, each stone shall be considered a rectangular solid corresponding in measurement to the extreme length, width and height of the stone measured.

** £12 (\$58.39) each and 15 per cent. ad valorem. †† £5 (\$24.33) each and 15 per cent. ad valorem.

Automobile Department.

THE PEERLESS MANUFACTURING CO., CLEVELAND, O.

(For illustration see "Latest Styles.")

THE Peerless Motor Car, manufactured by the Peerless Manufacturing Company, Cleveland, O., has a long wheel base, low center of gravity, with motor in front. The frame is built of channel iron after the style of locomotive, carrying out the idea that the motor car is a road locomotive rather than a horseless carriage. Both front and rear wheel are pitched inward, after the manner so long in use with all vehicles not run on prepared tracks. The pitch of the wheels is made possible by flexible axle, which also obviates all loss of power by excessive friction when strains of the road tend to throw the rear wheels out of alignment. The motors are of vertical type with crank disks enclosed in tight aluminum cases running in an oil bath which automatically lubricates the cylinder and all bearings. Owing to the vertical position of the cylinder all sides are equally lubricated with the piston rings wiping uniformly the entire circumference, and thus preventing an excessive amount of oil in the firing chamber, which obviates the prolific cause of obnoxious odors. The arrangement of the firing chamber and spark plug make the plug self cleaning. A system of mufflers is used which produce very little back pressure and yet almost eliminates the noise of the exhaust. Ignition is by the jump spark system by means of a mechanically operated vibrator of unique and entirely original design, which requires no adjustment in months. Circulation is by means of centrifugal pump operated by friction disk against the fly wheel. Cooling is by the most effective system of radiating coils at the front of the car and requires only two or three gallons of water.

The improved carburettor together with the high efficiency of the electrical igniting system and arrangement of mufflers entirely eliminates visible exhaust and obnoxious odors. The carburettor is of an improved design requiring absolutely no adjustment to the varying speeds of the motor. The starting is accomplished by a half turn of the crank which is placed at the front of the car. The drive is by means of beveled gear attached to the compensating gear, which is part of the rear axle, and is perfectly protected from dirt, mud or water. The speed gear is connected with the driving gear by a flexible shaft. The gears are enclosed in an aluminum case running in an oil bath which automatically lubricates all bearings. The speed gear is self contained and is connected with the motor by universal coupling which protects the bearings, gears and clutch from any strain due to any condition of the road. The speed is controlled by means of a single lever and the right giving three speeds forward and reverse with advancement and retard of spark to regulate the speed of the motor. Change of speed is quiet, clutches go in without clatter or vibration, and gears operate without noise.

A powerful band brake on each rear wheel is operated by a lever at the right and held by a ratchet until released. A foot brake operates on a drum between the motor and the compensating gear. The direction of the front wheels cannot be changed by contact with obstacles, and no shock can be transferred to the steering wheel. By means of a knuckle joint and sleeve the top part of the steering column is bent, throwing the steering wheel away from the chauffeur when mounting or dismounting. The sleeve operates by a spring holding the column rigidly without back lash or sway; this makes it possible to place the wheel well into the chauffeur's lap yet entirely out of the way when mounting. This is particularly necessary when divided seat is used.

The electric band both primary and secondary is conducted through a special heavily insulated cable, proof against short circuiting in wet weather. All parts are oiled by means of sight feed oil cups and pressure pump, placed in front of the chauffeur's seat within reach of the hand. It should be unnecessary to dismount for the purpose of oiling oftener than once in two hundred miles. Tires are of the Mechilin clincher pattern of American manufacture, 30 by 3 in. or 30 by 3½ in. Wire or wood wheels are used as ordered. All two passenger cars have rear platform, which may be for luggage, rumble seat or two passenger tonneau.

The chauffeur's seat is either double or divided into individual seats. The upholstery is regularly plain, but will be quilted if so ordered. All cars are equipped with two kerosene side lights and a very powerful acetylene headlight, or with two side lights and two acetylene headlights having a combined power about equal to the

single headlight which is offered as an option. The mud guards are of aluminum with front guards flared out, protecting both occupants and the car from mud when the wheels are at an angle. Weight of car with tanks filled, luggage and equipment ready for touring with tonneau, is 1,250 pounds; with tonneau, 1,350 pounds; eight H. P. motor, speed thirty-two miles per hour.

THROUGH THE ROCKIES IN AN AUTOMOBILE.

(For illustration see "Latest Styles.")

THE International Motor Car Company have made arrangements with Mr. Oliver Lippincott, of Los Angeles, Cal., to make a tour of the West in a Toledo steam carriage. The tour as mapped out will embrace a complete circuit of the Grand Canyon of the Colorado, followed by journeys all through the Yosemite Valley and later on into Yellowstone Park, as well as other points of interest in and about that mountainous western country.

For this journey a regular stock model has been selected, which in all but two respects is exactly the same as any other stock carriage. The first change has been made by increasing the water capacity to forty-two gallons, necessitating the lengthening of the wheel base an additional six inches. When equipped with full capacity of water and gasoline, it will weigh 1,550 pounds. Mr. Lippincott and his assistant, the Associated Press representative on the journey, together with their baggage, will increase the weight to about 2,150 pounds.

Inasmuch as a considerable portion of the country mapped out to be traversed will be far from civilization and certain other portions of it hundreds of miles removed from water, a trailer has been arranged to accompany the vehicle through the entire journey. This trailer as shown in the illustration is a low vehicle resting upon two wheels with springs back and front. It works upon a swivel joint hung from the back of the differential gear on the carriage. This trailer will carry four gasoline tanks of eight gallons each, making thirty-two gallons in all, an additional water tank with a capacity of twenty gallons and an extra compartment for photographic material. The weight of the trailer alone without any supplies is 400 pounds. When carrying the full capacity of gasoline, water and photographic material, the weight will be increased 200 pounds more, making the total net weight of the trailer some 600 pounds.

The engine that will pull this load will be the ordinary 7½ H. P. mode used in the regular Toledo carriages.

We shall watch the result of this trip with interest as it will be a most severe one and one that must test the mechanism of the vehicle to its utmost.

THE MILWAUKEE.

(For illustration see "Latest Styles.")

THE Milwaukee illustrated this month shows one of the Milwaukee Automobile Co.'s latest styles, differing from those previously shown by having the guide arm on the side instead of in the center. The Milwaukee is a steam propelled vehicle, and is built on the most approved lines, simplicity, durability and power being considered of the greatest importance, all of which is attained without detriment to style. The motor is built at Milwaukee, Wis., but can be purchased of Wm. H. Webster Automobile Co., of 8 West Sixtieth street, New York City.

WASHINGTON (D. C.) AUTOMOBILE DEALERS' ASS'N.

ON January 3d, 1902, all of the local dealers and automobile agents in Washington, D. C., with two exceptions met at the Boston Hotel and formed the Washington Automobile Dealers' Association. The two dealers not present represent houses belonging to the National Automobile Manufacturers' Association. The meeting was to organize and hold a local dealers' automobile show. Prior to the show the dealers wrote to their respective houses and not only secured their permission to take part in the show but further stated that they would take space and in other ways advance its interests. The executive committee, composed of the following named gentlemen, were elected officers of the association: A. L. Cline, president; Schuyler S. Olds, Jr., secretary, and W. J. Foss, treasurer and secretary, were directed to begin at once and make necessary preparations for holding the show during the month of April, 1902.

The show will be held in the spacious and well located armory of the Washington Light Infantry Corps.

More than one-third the space has been subscribed for by the local dealers with a large proportion of the remaining two-thirds spoken for by other exhibitors.

Much adverse comment was indulged in regarding the National Automobile Manufacturers' Association declaring for but two shows a year and working against local shows, even when such shows are largely made up of exhibitors not in the N. A. M. Association.

The two local automobile clubs, representing practically all the owners of automobiles in the city, will undoubtedly sanction the show and lend their hearty support.

AUTO SHOW TO BE COMPLETE.

INTERNATIONAL interest centers in the first annual exhibition of the Chicago Automobile Club and National Association of Automobile Manufacturers to be held in the Coliseum during the first week in March and every standard and known make and kind of machine and auxiliary scheme of equipment will be represented.

According to the advice received by Manager S. A. Miles, this will be a complete and substantial representation, the machines and devices being placed on exhibition and submitted to the most careful inspection and comparison, and nearly every foot of exhibition space in the main building has already been secured and assigned.

It is the present intention of Manager Miles to reserve the floor space in the annex for the purpose of exhibition and tests, which give a popular and current interest, and there has been such a demand for exhibition space in the main hall that the broad promenades will be the only vacant space. The exhibition opens Saturday night, March 1st, and every afternoon and evening until the following Saturday night special features will be introduced to maintain the general interest.

ONE HUNDRED MILE RACE PROPOSED.

THE Automobile Club of America is arranging for Memorial day a test race, with a mile record event the day following, which has aroused the greatest interest among the members. While no plans for the race have been made public the preliminary steps have been taken and already the men who own the best machines are getting ready for the event.

The start and finish will be at the club house, at Fifty-eighth street and Five avenue, New York City, but the turning point has not yet been announced.

Machines of European importation and the best makes of gasoline and steam autos the manufacturers of this country can turn out for the occasion will compete. The rules will stipulate that the motors must cover the distance to the turn and back to the club house without a stop. This route will be 100 miles in length, and there will be over 100 starters. Among the owners of the fast autos who are expected to start in this race are: W. K. Vanderbilt, Jr., Clarence Mackay, A. C. Bostwick, Albert R. Shattuck, Col. J. J. Astor, Jefferson Seligman, Jesse Lewisohn, David Wolff Bishop, Lloyd Warren, Clarence Postley, D. R. Guggenheim. The mile record race will contain entries of automobilists owning the fastest machines in America.

INTERNATIONAL MOTOR CAR COMPANY.

THE International Motor Car Company has arranged a very elaborate display for the Chicago Automobile Show, to be held in the Coliseum from March 1st to 8th this year. The name of this company was so recently changed that the public generally has hardly had time to realize that the great factories at Toledo, O., where the Toledo steam carriages are built, and at Indianapolis, Ind., the home of the Waverley Electric, are both included when the International Motor Car Company is mentioned. The entire exhibit at Chicago is to be very artistic, and while each division of the company will have a complete line of vehicles on exhibition, they will be so arranged that the whole will make a very striking display. The general designs are already well along for the booth, and it will probably be more elaborate than the exhibit at the Madison Square Garden Show, which every one that attended will remember for its striking taste and originality.

The Waverley portion of the exhibit will include a light road

wagon of the well known type and a vehicle of similar construction with a phaeton top. A delivery wagon of new design will also be included in the exhibit and a substantial surrey fitted with artillery wheels and otherwise up to date features.

The Waverley department has under construction a vehicle of entirely new design which is expected will make a sensation in trade circles. We are not at liberty at present to tell just what this vehicle is, but we can assure our readers that they will be pleased when they see it at Chicago.

The Toledo department will have on exhibition its standard Model A, Toledo steam carriage, such as is now making the trip through the Grand Canyon and the Yosemite Valley. It is a vehicle of this type that is also making the journey from Toledo, O., to Hot Springs, Ark. It will be remembered that Messrs. De Long and Soules are making this remarkable journey. They are already well on their way. This is the longest touring trip that has ever been attempted in America and through a country that has never before been coursed by an automobile.

The Toledo exhibit will also include a standard Model A, with phaeton top, and a surrey of somewhat improved design, although very similar to the one that attracted so much attention at the Madison Square Garden Show.

The Toledo Junior will also be a prominent exhibit of this company. This is a very neat little vehicle of light construction for general city and town use; in fact, it is designed to fill the same field for which the other well known light vehicles are designed. The Toledo Junior is equipped with a boiler the same as the regular Toledo Model A, excepting that it is of lighter steaming capacity. It has, however, steaming abilities ahead of some of the vehicles with which it is designed to compete. The frame of this carriage is of the well known type previously shown on some of the Toledo models. It is very flexible indeed and the vehicle is very easy riding. The Toledo Junior weighs about 850 pounds. It is not, of course, designed for heavy touring work like the standard Toledo, which weighs nearly 1,500 pounds, and which has a very heavy frame built of 1 3/4 inch heavy gauge steel tubing and wheels fully as heavy as many of the gasoline cars that weigh more.

A new model Toledo that will be exhibited for the first time at the Chicago show is the Dos-a-dos. The lines of this machine are very attractive and it is noticeable that it does not possess the dumpy look that some steam vehicles of this type have. Like the Waverley department, the Toledo factory has a sensation in store ready for the visitors at the Chicago show, but that is another story. There is one thing about the Toledo and Waverley automobiles, and that is, that the company can supply the demand immediately. When you order a Toledo or a Waverley, you can have the carriage at once.

FOURNIER ON AUTO DRIVING.

HENRI FOURNIER, the great French chauffeur, has some very valuable ideas on the subject of auto driving. Fournier says that in order to become a trustworthy motorist a man must begin early and practice long. He must not become afflicted with that ever prevalent disease, overconfidence, and should always be cool and cautious. He names the ability to steer as being one of the important requisites for the successful chauffeur and speaks as follows on the subject: "Any man who has ridden a bicycle should be able to adapt himself to auto driving without much trouble. A steady hand is absolutely necessary, and practical experience as a steersman is the only means of obtaining it.

"In regard to overconfidence, I will say this much. The man who affects to know everything about automobiles and automobiling is a dangerous personage to come in contact with. The worst smashups I have ever seen were brought about by operators who imagined that their reputations would shield them from all chance of mishap."

EXPOSITIONS OF AUTOMOBILES, CYCLES AND SPORTS AT BRUSSELS.

IN view of the growing interest in mechanical traction, our manufacturers of automobiles, cycles, etc., may care to learn that, in the early spring, two international exhibitions of automobiles, cycles, etc., are to be held in Brussels. From the 8th to the 17th of March, 1902, an International Exposition of Mechanical Locomotion will be held in the grand hall of the palace in the Park Cinquantenaire; from the 15th to the 23d of the same month, the Tenth International

Exhibition of New Locomotion (automobiles, cycles, sports and industries connected therewith) will be held at the Pole Nord, Brussels.

In the international exposition at the Park Cinquantenaire, there is to be a section devoted to aërostatics, organized by the Aëro Club of Belgium, and under the direction of the aëronaut, Mr. Capazza, who will exhibit two of his balloons, one torn and worn, accompanied by his parachute, and the other inflated. The exhibition will include every kind of known mechanical locomotion, automobile, velocipede, aërial, electric, maritime and nautical. Trials of aërial locomotion will take place in the Park Cinquantenaire during the exposition.

As regards the disposition of eventual profits, the Belgian Syndical Chamber of Automobiles has decided to make the following division: Twenty per cent. will be set aside as the nucleus of a fund; 30 per cent. will be used in experiments, such as races, competitions, trials, etc.; and 50 per cent. will be returned to exhibitors, who will thus share directly in the profits of the exposition and have the chance of regaining a part of the amount expended by them for space. In this way, constructors and agents may participate without incurring very great expense.

GEO. W. ROOSEVELT, *Consul*.

Brussels, December 18th, 1901.

The programme for the proposed exhibition is as follows:

CLASSIFICATION.

1. Automobiles of all kinds.
2. Cycles.
3. Materials for construction.
4. All kinds of tires.
5. Detached parts.
6. Motors.
7. Trimmings and accessories.
8. Aërostatics and navigation.
9. Various sports.
10. Shooting, hunting and fishing.
11. Costumes.
12. Bibliography.
13. Sporting association.

AMONG THE OLDEST MANUFACTURERS.

THE Haynes-Apperson Company, of Kokomo, Ind., have been manufacturing and selling automobiles since 1893 and during this long period a great many changes and additions have taken place in their factory. One of the latest is a new two story brick building 41 by 277 feet. They believe that with their latest improvements and their long experience to be able to make one of the most practical and serviceable carriages on the market today. One feature of their machine is that nearly every part that goes into it is made in their own factory and under their personal supervision. They will exhibit at the Chicago Automobile Show and would ask a careful inspection of their vehicles.

ANNUAL MEETING.

THE annual meeting of the Geneva Automobile & Manufacturing Company, Geneva, O., was held on the 13th of January. The meeting was a harmonious one and the outlook for the coming year was considered bright. The following were elected as officers and directors:

J. A. Carter, president; Fayette Brown, vice president; T. H. Russell, secretary; C. I. Chamberlin, treasurer.

Directors—J. A. Carter, C. I. Chamberlin, T. H. Russell, Henry Means, all of Geneva; Fayette Brown, F. A. Arter and T. A. McCaslin, of Cleveland, O. Mr. Brown is at the head of the Brown Hoisting Works, Cleveland; Mr. Arter is a retired capitalist, and Mr. McCaslin a prominent attorney.

SALE OF THE KEATING WHEEL PLANT.

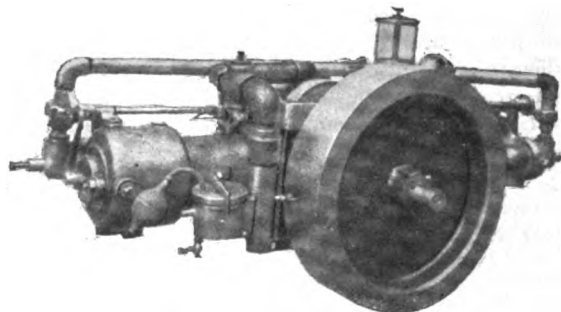
THE Keating Wheel & Automobile Company's plant at Middletown, Conn., has been sold to the Eisenhuth Horseless Vehicle Company of New York for \$210,000. The Keating company has been in the hands of a receiver for two years.

STEARNS STEAM CARRIAGE COMPANY.

It has been reported in manufacturing circles that the Stearns Steam Carriage Company of Syracuse, N. Y., had closed its factory in Leavenworth avenue for an indefinite time. George M. Barnes, vice president and treasurer of the company, said to a local reporter: "Our factory must have become confused with the Stearns Automobile Company, as there is absolutely no excuse for any report that we are not doing business. We are in good working order while the other company is getting in line as rapidly as possible. We are operating our factory and will operate it with more men as soon as the season is fairly open. We are now engaged in getting out our catalogue, which will show three models, making a total of eight, and we are already booking orders for our 1902 carriage. We were late in the market last year and despite that fact we made a good showing. The indications are favorable for a good year in the automobile business."

R. C. WALL MANUFACTURING COMPANY.

THE motor illustrated is of the opposed cylinder type. With a bore $4\frac{1}{2}$ and a $5\frac{1}{4}$ in. stroke, it develops 6 H. P. at 700 revolutions. The cylinders and valve chambers are water jacketed, the cylinders and heads being in one piece. The gears are all enclosed and run in oil. The oil is pumped into a small reservoir on top of the crank chamber and other important bearings. By this method it is impossible to run a surplus of oil into the cylinders after the motor stops, thus fouling the spark and preventing the starting of the engine promptly. It is also impossible to start the engine and forget to start the flow of oil, as the engine and the oil work in unison. The rings are ground to a perfect fit in the pistons, thus insuring against loss of power from leakage. The engine is perfectly balanced and as it gets an impulse at every revolution, it has a good steady pull at low speed.



THE WALL MANUFACTURING CO'S MOTOR.

The spark is of the make and break principle and can be shifted early or late. The shifter being connected with the throttle, the engine can be controlled entirely with one small lever. The vaporizer is of the flat feed pattern and is the result of long and expensive experimenting. There are no working parts contained in its construction and therefore nothing to wear or get out of order. The prompt starting of the motor at a half turn of the crank is assured, it never being necessary to turn it over and over. The muffler supplied is as nearly noiseless as possible to have one and has no back pressure, working as if the exhaust were made into the open air. To cool the engine, a water coil made up of tubing covered with discs $1\frac{1}{2}$ in. square, set $\frac{3}{16}$ in. apart, can be supplied extra. This coil can be made up into any shape desired to accommodate it to the space to be occupied. The price of circulating water coil depends upon the number of tubes desired. They are carried in stock 22 in. long, but length can be varied at a slight addition in price.

NEW AUTOMOBILE CORPORATIONS.

THE Des Moines (Ia.) Automobile Company filed articles of incorporation with the county recorder, giving its capital stock as \$50,000, and incorporators and officers as: C. B. Paul, president; W. E. Stone, vice president; A. S. Kenyon, secretary, and J. E. Paul, treasurer. The capital stock is divided into fifty shares of \$1,000 each. The company will conduct a general auto making business.

The Hoffman Automobile & Manufacturing Company of Cleveland, O., capital stock \$10,000, was incorporated at Columbus by L. E. Hoffman, William Calliwell, R. K. Pelton, M. M. Kechner, F. S. McGowan and F. H. Palmer.

AUTOMOBILE EXPOSITIONS IN PARIS AND LONDON.

PARIS.

THE fourth international automobile exposition held at Paris from December 10 to 24 was one of the greatest of all automobile expositions. There were about seven hundred different exhibitors, and the various divisions were: Automobiles, motorcycles, and all kinds of vehicles of mechanical traction; bicycles, material and tools for the manufacture of automobiles and bicycles, tires, detached parts, accessories and fittings for automobiles, motorcycles, and bicycles; motors for automobiles and canoes, and accumulators; navigation, aërostatics, sports, and rowing; automobile body work, costumes and equipment for automobilists, cyclists, and tourists; inventions and various adaptations concerning automobiles, bicycles, and sports; books, photographs, publications, maps, etc.

Among the interesting features of this exposition were new models wherein the regulation of the spark and the gas were attempted by means of a control placed next the brass ratchet, which, in electric-ignition machines, controls the spark. In one model, the control was by a small button on the dashboard. An arrangement by which the hot water from the jacket could be made to circulate about the carburettor, which, in cold weather especially, secures a higher temperature and a better flow of gas, was the feature in another machine. Another feature was a valve covering which could be removed in an instant for repairs. One machine showed a differential shaft, so constructed with flexible joints as to prevent injurious jarring. One manufacturer introduced a small dynamo in addition to the accumulator box at the right of the operator. There was also exhibited a motor of 15 horse power, four cylinders, aluminum water jacket, complete water circulation, admission and escape regulator, backward movement, and device for change of speed by means of a single side lever. A touring automobile had a horizontal petroleum motor, two cylinders, 11 to 12 horse power, with special regulator, having expansion gear and constant compression, screwless irreversible steering gear, and chain-controlled driving wheel.

According to one of the Paris dailies, from which other information in this report is obtained, one of the exhibiting manufacturers expressed the following opinion concerning the voiturette:

In making a small carriage, one must abandon the system which consists in taking a larger carriage as a type and making all the numerous pieces smaller; it is necessary to undertake the problem from the opposite point of view and make very few separate pieces, but make them bigger than in the large carriages and consequently less fragile and with greater resisting power.

The carriage resulting from this idea was composed of an enormous central tube placed on the wheels by means of two transverse springs. The motor and its accessories were in a block below this tube. All could be taken to pieces by removing seven rivets. The carriage above was held by twelve rivets.

Many chainless machines were also shown; the transmission of power being by the Cardau system—the connecting rod being fitted with an articulated extensible joint.

ENGLISH THE WORLD'S LANGUAGE.

TWO-THIRDS of all the letters which pass through the post offices of the world are written by and sent to people who speak English, according to Bradstreet's. There are substantially 500,000,000 persons speaking colloquially one or another of the ten or twelve chief modern languages, and of these about 25 per cent., or 125,000,000 persons, speak English. About 90,000,000 speak Russian, 75,000,000 German, 55,000,000 French, 45,000,000 Spanish, 35,000,000 Italian and 12,000,000 Portuguese, and the balance Hungarian, Dutch, Polish, Flemish, Bohemian, Gaelic, Roumanian, Swedish, Finnish, Danish and Norwegian. Thus, while only one-quarter of those who employ the facilities of the postal departments of civilized governments speak as their native tongue English, two-thirds of those who correspond do so in the English language. There are, for instance, more than 20,000 post offices in India, the business of which in letters and papers aggregate more than 300,000,000 parcels a year, and the business of these offices is done chiefly in English, though of India's total population, which is nearly 300,000,000, fewer than 300,000 persons either speak or understand English.

INDUSTRIAL DEPARTMENT OF THE NATIONAL CIVIC FEDERATION.

(Continued from page 465 January HUB.)

"No other country can make a showing comparable with this. And in no other country do wage earners, through well directed energy in larger numbers, become capitalists, and capitalists, through misdirected energies, more readily become wage earners, than in our own. There are less obstructions on the up grade as well as on the down grade.

"You great captains of industries, you the great leaders of organized labor, have come here in a spirit of conciliation and deliberation. May that spirit characterize your entire proceedings, and may our meeting tend to a better understanding between the constituents of these powerful interests so dependent upon each other, known as capital and labor, but which, in fact, are but members of the same household, wherein the welfare of each rests upon mutual concessions to the rights and privileges of the other."

On introducing Senator Mark Hanna, President Straus read an extract from a newspaper review, in which Senator Hanna said:

"I would rather have the credit of making successful the movement to bring labor and capital into closer relations of confidence and reliance than be President of the United States. If by resigning my seat in the United States Senate I could bring to fruition the plans that we are now fostering, to make strikes, lockouts and great labor disputes impossible, I would do so."

Mr. Hanna said: "Gentlemen, those are my sentiments. And they came from the heart, and they came after a long experience in the industrial world and almost daily contact with labor since I have been a man of business.

"In my business connection it so happens that I have been engaged in that class which has necessitated the employment of a large number of laborers. In 1874 it happened for the first time that I had direct dealing with a district labor organization. That was the year that the National Bituminous Coal Miners' Association of the United States was formed. I remember the incident when the president of that organization and its secretary called upon me in my office. It was a year which followed a long and disastrous strike in a section of the coal mining districts of Ohio. They came to me with a proposition representing their organization that something ought to be and might be accomplished to do away with the disastrous strike, and by way of argument they read to me their constitution and by-laws. I said to them:—'Gentlemen, if you mean what you have said in those articles I am with you. If it is your purpose and determination to lay the foundation for a better understanding between capital and labor I will give you my hearty co-operation.'

"And having become convinced that there was sincerity in their purpose, I immediately took up the operators' side of the question, and in a short time we had an operators' organization, a committee appointed from each, to whom were to be referred all differences, and difficulties to be settled by arbitration.

"During the life of that labor organization all troubles and differences were settled by arbitration. That incident made me an advocate in favor of organized labor. I am encouraged to believe that that third element is coming into power, making manifest an interest outside of those two forces which have been engaged together in this country, that will solve all problems, surmount all difficulties and bring the two opposite forces together.

"The faith in me has grown stronger of this accomplishment from year to year. So that, my friends, I feel that this is but the beginning of the end which will accomplish the purposes for which we are assembled here. And with the assurance that in every way that I can serve with you I am at the service of this organization."

Charles M. Schwab, when called upon by the president, said:

"Any man who is as largely and as deeply interested in labor as I am must try to see the other side of the shield, to see the question of labor from the employe's as well as the employer's point of view, and I am here for that purpose this morning. I am here with a mind open to conviction, with a mind to receive anything that is fair, with a mind to do that which is fair to bring about harmony between capital and labor.

It is a selfish motive in a way. I realize that the prosperity of the United States is going to advance more rapidly. It is bound to advance at any rate. But it is going to advance much more rapidly when this happy solution has been reached. The decadence of trade in many of the old countries is due, as I expressed it to a large body of English labor people and manufacturers a short time ago, primarily of all things to the attitude which labor has taken with reference to capital.

"There is one point that I want to impress upon you. I am not going to make a speech. But there is one point we must bear in mind—that labor unions will never succeed, as trusts never succeeded, that attempt to restrict the output or attempt to put any restriction upon trade in general.

"These great trusts that are formed in a business way to control the output of any commodity, to raise its price—they all have failed and all will fail. A trust will succeed where there are motives of consolidation for economy's sake and for regulating trade generally. And the laborer must take a similar position. Labor must not restrict the output. That is a fundamental principle.

"I hope that this conference will result in good. I have said more than I expected to say. I shall speak frankly whenever I do speak. I am opposed to labor organization as it is to-day organized and as I

have found it. I am sorry I did not have Mr. Phillips and such gentlemen to deal with. I think that only good will come from a frank and naked discussion of the truth, and therefore I give you these views. I should not be opposed to organized labor if organized on correct principles. It is a mistaken idea to suppose that manufacturers are opposed to labor unions per se. They are opposed to them as they do exist—not to labor organizations which keep their contracts, not to labor organizations which will not restrict the output, not to labor organizations which have the good of the trade they represent at heart.

"I have spoken frankly, I hope not offensively. I come here to be convinced of anything that will result to the good of the workmen and their employers, because their fortunes and their prosperity are mutual and must stand together."

The president introduced Lewis Nixon as "the man who perhaps to-day ranks as the leading naval architect of the world for his years."

In response to the call, Mr. Nixon said: "I did not come here to-day to talk. I came here simply to testify by my presence the great interest which I have as a man who works in this movement which has come to the front to-day."

"I employ a number of men. Four years ago I concluded on my own initiative that I would try making my men union men. And I did so—not because they asked me to, but because I believed that eventually I would accomplish more by doing so. I have as yet no cause to regret my action. There are things in connection with organized labor that the employer has to criticize, but, so far as I can see, the relations of organized labor to the employer present far more that is good than bad, and they are constantly improving."

"To my mind the reason of the great industrial and commercial development of the United States during the last twenty years has been brought about more from the fact that the employer in this country works with the men who work for him. We are all workers here and all have rights. And I feel that now we are about to bring about a kind of an industrial clearing house where the grievances of both sides can be carefully discussed and fairly weighed, and with the benefit of public opinion upon the side that is right there is no question but that lasting, permanent and great benefit will be derived."

"In the relations that we have here we want to bring about an American spirit. One of the troubles of labor organizations, as I see them—and I think this is a time for frank talk—is the fact that many of the abuses that have grown up in foreign countries have been brought into the organizations in this country."

"I believe the American workman to be courageous enough to stand up for his rights and courageous and intelligent enough to know when he is wrong. And this is of itself the most hopeful spirit present to-day. We are all willing to do what we can, and the point is not that we are to endeavor to get the greatest amount of work for the least amount of money, but we also should come to the front and never be determined to give the least amount of work for the greatest amount of money."

I find that whenever I talk to a man who is working and put the facts plainly before him he meets me more than half way. And there has never been any trouble in my relations with men to get a fair and honest adjustment of any dispute. And that is the spirit we must bring about throughout the country."

"But we have to recognize the union to-day because the labor union man does exist, and he is going to stay, and he is going to get stronger, at the same time that the employer is going to become stronger and more powerful. And as soon as they get together and realize that they are all working for the best, the better for all concerned. And I believe that this meeting is going to bring about some such result."

"I stand ready to do whatever I can and to always meet and talk with any man representing labor upon an absolutely fair basis, realizing that he has rights and realizing that I have them, and that both of us are going to contend, as far as we can, without open rupture, for our own best interests, because the idea that any set of men are going to abandon their interests is a mistake—but there need be no more conflicts if men will reason," concluded Mr. Nixon. "And if we bring about an American spirit in this country as between the employer and the laborer, there is no question but that the workmen will stand with the employer to produce great and lasting results."

On the side of labor unions, Samuel Gompers, president of the American Federation of Labor, or being introduced by President Straus, said:

"We are living to-day in an era of the highest development of industry and concentration of wealth and power in the direction of employing thought in production by the fewest possible means. The wonderful productive force, the improvement of machinery, the division and subdivision of labor, the new propelling forces of steam and electricity and water—all these great powers and motives and influences converge to the one point of the great production of the workers."

Let me say to you, my friends, that having that picture in mind, there are some even in our day who speak of the individuality of the worker. I grant you that where the economic and social conditions admit of individual action, that that is the ideal situation. But when we find on the one hand the great concentration of wealth and power, and the concentration of industry with the great direction of the industrial and distributing forces placed in the hands of few, or comparatively few, it is as idle for the individual worker to attempt to obtain redress as it is for a vessel to survive with tempest around it and with storm and hurricane, without rudders or seamen to guide it.

"To-day the individual worker is an atom in the industrial and social and economic forces of our world; and the atom may be blown away without any effect upon our social or political or economic body politic."

"What is necessary is that the workers, so far as is consistent with their social and political liberty, shall merge their economic interests with their fellow workers, and through that method endeavor to obtain ethical considerations for the rights of both the elements in production."

"I would not have in our industrial system of society the rights of an employer toyed with nor flagrantly violated. And I want to say that I would not tolerate nor stand by, nor permit, so far as my powers and opportunities may afford, that the rights of the weakest of our fellow workers shall be trampled upon."

There is in our time, if not a harmony of interests, a community of interests that industrial peace shall be maintained. I will not join, I have not joined, and I will not to-day join in that hue and cry against the combinations of capital. I realize that that is a matter of economy and development and strength."

"But I do say, and I might say it parenthetically, that what I do object to so far is the organizations of capital, popularly known as the 'trusts,' attempting to interfere with the political affairs of our country, and particularly the judiciary. I am speaking of them from an industrial standpoint and from a commercial view. I welcome the organization of the employers, the wealth possessors."

"I want to see the organization of the men and women who labor and produce the wealth, popularly known under the term 'wage earners,' come and meet round the table in the office of the employers or in the office of the union, if you please, or, if that be not agreeable to either or both sides, then in an office or a room upon neutral ground, and there discuss the question of wages and hours of labor and conditions of employment that shall tend to the uplifting of the human family consistent with the industrial and commercial success of our country."

Mr. Sargent, grand master of the Locomotive Firemen, in the course of a short talk said he thought that the barriers dividing labor and capital were being broken down and that advantage was resulting to both. He referred to the fact that 42,000 locomotive firemen received \$32 a month each in 1873, and now through organization get more than double that sum. There have been few strikes, and in dealing with railroad officials there is no need to make threats.

John Mitchell, president of the United Mine Workers of America, said:

"To me the solution of the problem of labor is not a difficult one. It is not one that requires the introduction or consummation of Utopian ideas. To me, and with my experience in the movement, having taken part in about as many labor strikes as any one of my age, it seems to me that what men want to do is simply to reason together."

"If the employers of labor and the representatives of the labor unions can meet in honest conference, if when they meet they will tell one another the absolute truth, I dare say that the days of strikes and lockouts shall be over."

"I have never seen in my experience a strike that could not have been averted if the employers and the men who work had met in conference before the strike was started. I understand that the purpose of this meeting is to try and bring about an arrangement between men representative of capital, men representative of labor and men representing the business and professional interests of our country."

"If the movement that was started for the National Civic Federation about one year ago is carried on to the conclusion that was hoped for then, then this movement will have done more to solve the problem of the relationship between laborers and capitalists than any other movement in our country."

Marcus Marks, president of the National Clothing Makers' Association, said the problem had been theoretically solved; capital wants labor to produce and labor wants to serve the trade; but there is still room for improvement, and when the time for agitation ceases all must be at a standstill. The worker whose day's work is restricted is degraded; discontent is necessary to spur him to further efforts.

John Phillips, secretary of the National Hatters' Union, proved most amusing, and his method of telling his story kept the magnates roaring with laughter. He said it was cruelty to animals to make him speak. He had come only to hear others. His union is generally able to settle all differences that arise. The system is to have three men in each shop as a committee. All matters in dispute go first to this committee and then to a local committee, and finally to the National Board, and any strike before the final order comes involves a heavy fine. When Mr. Phillips began work at his trade the men would walk out on a strike with little or no reason.

"I was as guilty as any of them," he continued. "Where would we walk to? Oh, to the corner, of course. We were not judicial at all. I thought that manufacturers had no rights that journeymen were bound to respect. Now no man quits until the national officers give the word. Some men quit in Orange a few years ago and defied the national officer, using words that are not found in any well regulated church publication. Well, they had to pay \$10 each."

Mr. Phillips says it is customary for hatters to have six months' contracts with the manufacturers and to stick to these contracts whatever happens. He declared that he had pictured Mark Hanna as an enemy, and he recently wrote to the McKinley Memorial Association that it included the names of persons hostile to labor. He was delighted to admit his mistake.

James Ryan, vice president of the New York State Federation of Labor, and an officer of a typographical union, expressed the opinion that the relations between employers and employees are far more amicable now than when he started in the printing business, fifty years ago.

"Ben" Tillet, an English trade unionist, was called upon, and made a speech extolling English trade unions. Much of what he said was of the ranting, sensational order. The little he said that was otherwise was more than negated in his address by ill tempered remarks on Tuesday evening, and proved that the American workman can best advance his interest by steering clear of the labor agitator of Europe.

The third or public element spoke through Bishop Potter and Archbishop Ireland. In his remarks Bishop Potter said that he was accredited with being the first to take the initiative in establishing the Board of Mediation and Conciliation. He declared that credit for the work of this board rightfully belonged to Mayor-elect Low and to Felix Adler.

"We have had a great deal of rhetoric on both sides of this question, but very little real thinking. I am much encouraged at seeing the men who take part in this conference. I think that the growth of intelligent scrutiny in the matter of industrial concerns is one of the greatest promises of good in future. Not to-day, not to-morrow nor next year will a pronouncement probably go out to decide this question. The encouraging thing is that the animus has steadily improved."

The bishop further said the controversies usually held suggested to his mind a shield, each party being able to see only one side and denouncing the other as a liar for what he said.

Archbishop Ireland made an eloquent address. He said: "There have been divergencies between employers and employes, between capital and labor, divergencies which, brought out now here and now there, have wrought great harm to all interests. I believe that the one great cause of the existence of those divergencies is this, that men have not sufficiently come together; that men interested on one side or on the other have not looked into the faces of one another, have not drunk in the ideas of one another, and above all have not felt the warmth of the hands of one another."

"I have never yet met an employer who was not ready to say that the ideal condition of any man put upon this earth by his Creator is that means be given to him of leading a life to become a man and becoming a child of God."

"I have not yet met the capitalist that has ever thought that man, whoever he is, however weak, is a mere piece of machinery. Capitalists who would have so thought may possibly have existed in the past or may exist elsewhere than in our society. But it has been the effect of our own democratic American society, permeated as it is by this intense feeling of mutual brotherhood; it has been the result of such society that every citizen wishes that every other citizen had for himself and for his family the means of a decent livelihood."

"Our very political constitution makes it plain that we ought to aim at brotherly love, as understanding one another. Elsewhere, men by long right of birth and titles imagine themselves better than others. Elsewhere, others, through long centuries of servitude, may feel that there is no ray of sunshine coming from above to them. Not so here. There is the great beauty and charm and benefit of our American institutions. It brings us occasionally before the political world, where we are absolutely brothers, the poorest having as much right as the richest."

"And I am very sure that if the fact of our meeting here to-day as we do were known throughout the world, tens of thousands of anxious eyes would be turned toward this room, and from tens of thousands of hearts loving their fellow men, prayers would go up to the supreme Father that we may have this peace and harmony which it is our intention to labor for to-day."

As a result of the first two days' meetings, the following, an Arbitration Board, was appointed, consisting of thirty-six representative men, representing the three elements, whose purpose would be to devise means to solve the problems arising from the conflict between capital and labor. This board consisted of the following:

REPRESENTATIVES OF CAPITAL.

MARCUS A. HANNA, United States Senator.
CHARLES M. SCHWAB, president United States Steel Corporation.
S. R. CALLAWAY, president American Locomotive Works.
CHARLES A. MOORE, president National Tool Company.
JOHN D. ROCKEFELLER, JR., Standard Oil Company.
H. H. VREELAND, president Metropolitan Street Railway Company.
LEWIS NIXON, owner of the Crescent Ship Yard, Elizabethport, N. J.
JAMES A. CHAMBERS, president American Glass Company, Pittsburgh.
WILLIAM H. PFAHLER, president National Stove Manufacturers' Association, Philadelphia.
JULIUS KRUTTSCHNITT, assistant to president Southern Pacific Railroad.
E. P. RIPLEY, president Atchison, Topeka & Santa Fé Railroad.
MARCUS M. MARKS, president National Association of Clothing manufacturers.

REPRESENTATIVES OF LABOR.

SAMUEL GOMPERS, president American Federation of Labor.
JOHN MITCHELL, president United Mine Workers of America.
FRANK P. SARGENT, grand master Brotherhood of Locomotive Firemen.
THEODORE J. SHAFFER, president Amalgamated Association of Iron Steel and Tin Workers.

JAMES DUNCAN, first vice president American Federation of Labor.
DANIEL J. KEEFE, president International Association of Longshoremen.

MARTIN FOX, president Iron Moulders of America.
JAMES M. LYNCH, president International Typographical Union.
E. E. CLARKE, grand conductor Association of Railroad Conductors.

HENRY WHITE, secretary Garment Workers of America.
WALTER MCARTHUR, editor *Coast Seamen's Journal*, San Francisco.
JAMES O'CONNELL, president International Association of Machinists.

REPRESENTATIVES OF THE PUBLIC.

GROVER CLEVELAND, former President of United States.
CORNELIUS N. BLISS, former Secretary of the Interior.
CHARLES FRANCIS ADAMS, former president Union Pacific Railroad.
BISHOP HENRY C. POTTER, of New York.
ARCHBISHOP JOHN IRELAND, of St. Paul.
CHARLES W. ELIOT, president of Harvard University.
FRANKLIN MACVEAGH, wholesale grocer of Chicago.
JAMES H. ECKELS, bank president, Chicago.
JOHN J. MCCOOK, lawyer.
JOHN G. MILBURN, lawyer, of Buffalo.
CHARLES J. BONAPARTE, of Baltimore.
OSCAR S. STRAUS, merchant and former Minister to Turkey.
Secretary of the Commission, RALPH M. EASLEY, of the National Civic Federation.

The first meeting of this Board of Arbitration was held on Wednesday, and elected the following gentlemen as officers:

Chairman, United States Senator Marcus A. Hanna; vice chairmen, Samuel Gompers and Oscar S. Straus; treasurer, Charles A. Moore, and secretary, Ralph M. Easley.

The following resolutions were adopted by the Board:

"This committee shall be known as the Industrial Department of the National Civic Federation."

"The scope and province of this department shall be to do what may seem best to promote industrial peace; to be helpful in establishing rightful relations between employers and workers; by its good offices to endeavor to obviate and prevent strikes and lockouts; to aid in renewing industrial relations where a rupture has occurred."

"That at all times representatives of employers and workers, organized or unorganized, should confer for the adjustment of differences or disputes before an acute stage is reached and thus avoid or minimize the number of strikes or lockouts."

"That mutual agreements as to conditions under which labor shall be performed should be encouraged, and that when agreements are made the terms thereof should be faithfully adhered to both in letter and spirit by both parties."

"This department, either as a whole or a sub-committee by it appointed, shall when requested act as a forum to adjust and decide upon questions at issue between workers and their employers, provided in its opinion the subject is one of sufficient importance."

"This department will not consider abstract industrial problems."

"This department assumes no powers of arbitration unless such powers be conferred by both parties to a dispute."

"This department shall adopt a set of by-laws for its government."

In addition a committee was appointed to draft constitution and by-laws, to report at a meeting to be held in January.

THE DEATH'S HEAD CARRIAGE.

A CARRIAGE has been preserved in the Armory of Schloss Friedenstein, Gotha, which has been called the "death's head carriage." This strange vehicle was built by order of Duke August of Saxe-Coburg and Alemburg (1804-1822). Whether it was meant to represent a death's head is not quite clear, as it bears no other emblems of death, unless, perhaps, the "Mors-Emperor" should be represented by the diadem-like lozenged wreath. A. Beck is the only writer who reproduces any history of the "death's head carriage," and he says: "After the conclusion of the peace of Tilsit, the Duke August and his brother Frederick came to Dresden in order to meet the Emperor Napoleon (July 17, 1807), who was afterward, on July 23, at the Castle Friedenstein, where he was festively received and magnificently entertained. The use of a splendid state coach, sent by the Duke for the Emperor, which was, however, the shape of a death's head, was refused by Napoleon."

The carriage is marvelous in color—the upper part of the body dark green leather, the lower painted in red, crimson and gold, representing draped curtains, and the coachman's seat is in velvet of sage green and red, with old gold fringe. The rest of the carriage is painted gold, picked out with green; the inside is furnished in silk; the top or ceiling, representing the sky, is blue, with gold stars.—*Golden Penny*.

GENTLEMAN'S DRIVING PHAETON.

(Continued from page 484.)

The widths of body are: Across back, 40 in.; across front pillar, 45 in.; across standing pillars, 48 in. The side sweep should be drawn in to these points of measurement. The bottomside in frame should be curved into the required width of the outside of the shafts, which is 36 in.

The hind driving boot is fixed to the body frame with edge plates, and a center supporting stay from the cross spring span iron, as shown in the drawing.

The boot is solid sided and fixed with screws from underneath the footboard into the side. A block speaking trap is fitted to the top of the body in line with the hind top cross roof rail and roof slat.

Hangings: The body is hung on grasshopper and cross springs. The front of the grasshopper is jaw-locked to square scroll iron; this scroll must be of such a substance as to prevent give in the spring's action, because in the deflection the spring lengthens slightly, and sufficient to throw a continual straining pressure on the stay as a lever which tends to force it over. This pressure is sometimes sufficient to cause fracture at the scroll's neck at the foot, and it should be a very sound piece of forging at this part, and forged with a short tail and long cross feet, and fixed on each side of the scroll with two bolts in each foot. This, together with the center tail, will give a proper steadiment to the scroll when the carriage is weighted and the spring in action.

The center stay is forged in pump handle fashion, with a strength of $1\frac{1}{4}$ in. deep by 1 in. thick; the body feet go right across and along the bottom side. The center flap is forged to the width of spring (2 in.) and $6\frac{1}{4}$ in. long; to the top of this is clipped the center stay, which supports the driving seat in the center of footboard. The shafts are supported with side and center stays. The hind part of the shafts are plated $1\frac{1}{4}$ in. by $\frac{1}{8}$ in. plates inside and out. These may be riveted to the framing or fixed with $\frac{1}{4}$ in. bolts, the nuts coming on the outside. The draught hooks are bolted to flaps forged to the tie stays, the shafts are got out 2 in. and lightened in and rounded up to shape.

Length of axles, 4 ft. 8 in. over solid collars (Collinge) over solid butterfly flaps; 4 ft. $5\frac{1}{2}$ in. width of ditto, $1\frac{3}{4}$ in. by 6 in. long; strength of axle, $1\frac{1}{2}$ in., full; length of boxes, $9\frac{1}{4}$ in.

Length of side springs to centers, 3 ft. 8 in.; width of ditto, $1\frac{3}{4}$ in.; number of plates, 8; strength of back, $5/16$ in.; of back plate, $9/32$ in.; and other plates, $\frac{1}{4}$ in.; compass of ditto over all, $4\frac{1}{2}$ in.; length of hind cross spring, 4 ft. 3 in.; number of plates, 8; width of ditto, $1\frac{3}{4}$ in.; strength of back, $5/16$ in.; of back plate, $9/23$ in.; other plates $\frac{1}{4}$ in.; D shackles are mostly used, but cow-mouth ends should always be put on to a high class piece of work, and to a gentleman's carriage, length of shafts from center of dash, 6 ft. 1 in.; width inside behind, $31\frac{1}{2}$ in.; between points, 24 in.; height of front platform from ground, 24 in.; depth of center body rest, $12\frac{1}{2}$ in. from bottom; depth of dash, $11\frac{1}{2}$ in.; depth of hexagon panelling over bottomside and shaft, 19 in.; height of shaft from ground, 47 in. at tug stop.

Height of wheels, 4 ft. 2 in.; india rubber tires; depth of felloes, $1\frac{1}{2}$ in.; tire, $1\frac{1}{2}$ in.; diameter of hub, $8\frac{1}{4}$ in.; length of ditto, 9 in.; strength of spoke, 2 in.

STANHOPE AND BREAST COLLAR HARNESS.

(For illustration see "Latest Styles.")

PLATE CCIX. shows a heavy stanhope and a horse fitted with a heavy "Swiss" breast collar. This style of harnessing is quite popular at the present time, but it is a case where harmony is sacrificed to a whim of fashion.

FAMILY SURREY.

(For illustration see "Latest Styles.")

PLATE CCX. shows a popular style of canopy top surrey, the team being harnessed in the plainest kind of a round collar, everything bespeaks of good serviceable vehicle and team of the plain everyday type.

PRIZE TURNOUT.

(For illustration see "Latest Styles.")

PLATE CCXI. shows a blue ribbon winner owned by B. W. Moyer

of Syracuse, N. Y. The horse is his chestnut gelding King and the carriage is Harvy Moyer's, No. 71 Stanhope. The harness was manufactured by C. Neidhart of Rochester, N. Y. The ribbon was won at the Syracuse show last summer. The award was based upon horse 50 per cent., appointments, 50 per cent.

TWO WHEELER.

(For illustration see "Latest Styles.")

PLATE CCXII. shows a two wheeler with low bracket front and without a dash. The body possesses no special features but serves to show the tendency of builders to jeopard appearance in order to produce something out of the regular line. The heavy breast collar is of the swiss fold type.

END SPRING PNEUMATIC.

(For illustration see "Latest Styles.")

PLATE CCXIII. clearly shows an end spring pneumatic, square box buggy, and a horse harnessed with a "Swiss" breast collar. This is one of the popular two passenger buggies. The harness is much heavier than we are accustomed to see before a vehicle of this style, but fashion stamps it with its approval, and we must get used to the innovation.

SIX PASSENGER SURREY.

(For illustrations see "Latest Styles.")

PLATE CCIV. illustrates a six passenger canopy top surrey, built by The Groton Carriage Works, Groton, N. Y. Wagons of this character are growing in popularity as conveyances for summer boarders. This is so arranged that the center seat can be reversed so that passengers can sit dos-a-dos if they desire. The large canopy top is securely supported and the general appearance of the vehicle is pleasing.

LOOK OUT FOR "MR. BURTON."

CARRIAGE manufacturers throughout the west have been called upon by a Mr. Burton who represented himself in one case to be of the Burton Lingo Co., of Midland, Tex., a firm having the agency for this manufacturer's goods in that place. He placed orders for two cars of goods, after which he stated that he was compelled to visit other places and found his cash becoming short; he asked a loan of \$150.00. As he was a total stranger he was invited to call later in the day. He failed to do so, and the Texas house was telegraphed. Their answer was that they knew of no G. W. Burton, that he had no connection with the firm, and that if he represented himself as such he was a fraud. Other large houses have been visited by a man which is believed to be "Mr. Burton." At one place he was accompanied by another man who he introduced as Mr. Hughes, their branch manager. The man is described as being of medium height, heavily built, and weighing, perhaps, two hundred pounds. He has a clear, smooth complexion, very dark hair and mustache, is well dressed and has the appearance of being a prosperous country merchant, and by his conversation gave the impression that he was well acquainted with southwestern Texas. The accompanying "Mr. Hughes" is described as being of slight build, long, thin face, large features and pock marked or scarred. He was neatly dressed but did not have much to say, and was not prepossessing in his manner. It is evident that the attempt is being made to work the Vehicle and Implement manufacturers and the trades should be on their guard. If a stranger calls and wants to borrow after placing orders, don't put out the money until he proves himself. Pass him around.

LONDON GROWLER.

AN effort is being made to popularize the London Growler in this country. This vehicle is a cross between the coupe and rockaway. Visitors to London do not find it popular, except as a cheap hack, and the well dressed man who patronizes one is liable to be jeered at by the street arabs. It is convenient in that it has room on the top for baggage, but the inside finish is wood, with no trimmings but the cushions. It has no advantage over the rockaway except the provision for carrying the baggage, and we doubt if it can be made popular here except for hack purposes.

CARRIAGE MATERIALS.

THEIR INFLUENCE ON THE CARRIAGE INDUSTRY.

Bodies, Gears and Parts. Axles and Springs.

To the carriage builder of the olden time, the present methods of carriage manufacture present a condition little short of a revolution, while to him of to-day it reduces labor and cost, and gives results that are most satisfactory. The late Phineas Jones, in the course of a speech before a body of carriage makers, perpetrated a witticism that now savors more of fact than fancy. He asked himself the question, "What does the carriage builder do?" and after a short pause said, "Why, he paints the carriage." And this is an actual truth to-day, if one wishes, as vehicles in the white can be purchased, trimmed and ready for the painter; but if a manufacturer cares to put the vehicle up, he can buy every individual article needed, whether the vehicle be a common old style buggy, or the most modern, or any other character of a carriage up to the

We enter another place, and view the vehicles coolly and without a touch of enthusiasm. We go through the factory and hear the noise of machinery, see the active workers, but grow tired of the confusion, and see nothing pleasing as we return to the repository, and we cease to wonder why this man must depend upon the low prices to sell his work. We are led to these remarks because of the freak tendency of the times, which has given us much that is undesirable and offensive, where the opportunities are so great for presenting the harmonious and beautiful.

The body is the first to be considered in designing a carriage where graceful form and harmonious details are sought; but its merits or demerits cannot be ascertained in full until the suspension is determined. It becomes necessary therefore that the de-

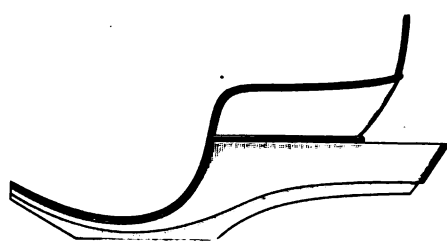


FIG. 1. STANDARD GODDARD.

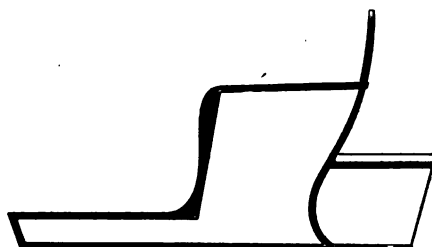


FIG. 2. ONE TYPE OF THE CORNING.

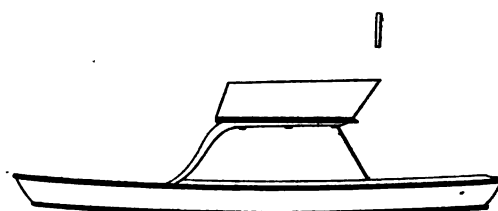


FIG. 3. NEW ENGLAND CONCORD.

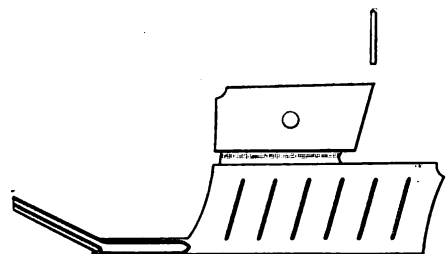


FIG. 4. BRACKET FRONT.

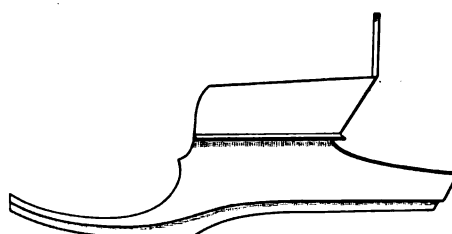


FIG. 5. ORIGINAL GODDARD.

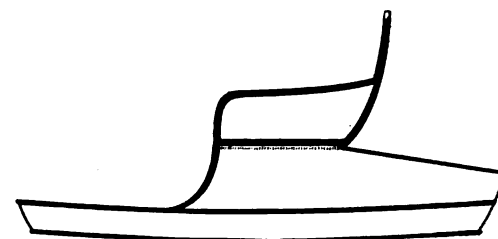


FIG. 6. PANELED CONCORD.

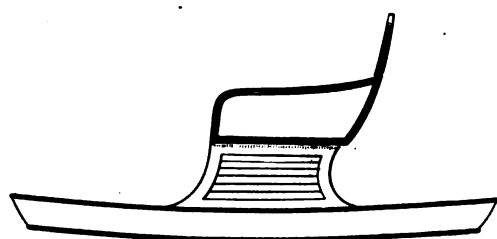


FIG. 7. SOLID SEAT RISER, CONCORD.

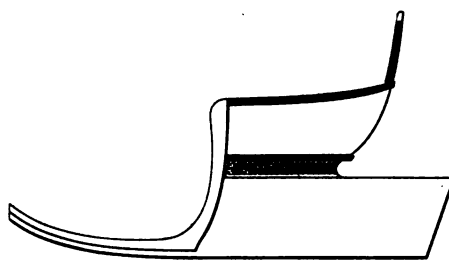


FIG. 8. SCOOP FRONT.

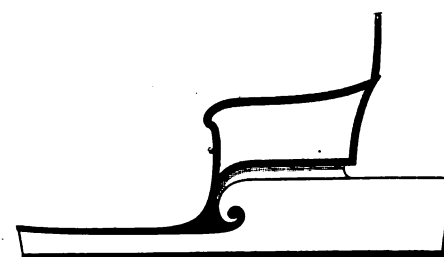


FIG. 9. NEW STYLE CORNING.

landau, coach or Brougham, of someone who has made the production of the part wanted a business, and the influence of such individual production has been made apparent throughout the entire carriage world. It has not always been elevating in its character, although eminently practical; but as a whole the results have been gratifying to the progressive manufacturer, who associates art with mechanics, and thus produces a vehicle that is at once beautiful, luxurious and reliable.

We frequently hear artists speak of an art atmosphere, an indescribable something that inspires higher thoughts and leads to higher results than when this something is not present. We sometimes enter a carriage factory, and without a thought of the influence we find ourselves enjoying everything around us. We look upon the finished vehicle and feel a wish to see the artists who made it, and we can traverse every department of the workshops feeling the same influence, and return to the finished carriages better prepared than ever to appreciate their beauties, and on leaving the so-called mystery why one house has a higher reputation than another is cleared up, as we have learned how great a power is art.

signer and the builder decide upon the character and proportions of the gear. Failure in this direction has caused many disappointments. It follows, therefore, that no design should be considered without first seeing a full size drawing on the draft board.

In our review of the material and design features in this month's HUB we will confine our remarks on bodies mainly to the higher classes of vehicles, such as buggies and surreys.

In no other country in the world is the carriage builder called upon to furnish the number of new styles as in this. The primary cause for this condition is that in no other country is the percentage of carriages so great as compared with the population. A second cause is the great demand for light driving and family carriages, of which a very great percentage is of the "buggy" type. Just how many of these are built annually in the United States would be hard to say, but five hundred thousand would be a conservative estimate of the output of the wholesale plants, while not less than fifteen thousand builders put up from ten to fifty each, and it is but natural that where the number is so great the variety of styles must be great also.

The bodies may be divided into five families. The "square box," the drop front, whose leading representative is the "Goddard;" the low front, the "Corning," the canoe, best represented by the "Concord," and the "bracket front." The accompanying illustrations show standard outlines of each progenitor or most popular member of its family for the last fifty years. The almost unlimited modifications of the body, the variety of the seats, the combinations in which two or more styles are amalgamated, offer an almost infinite field for the designer. Slight changes of lines give a freshness without depriving a style of its specific feature, and it is well for the designer to keep the original in view when planning a change.

In this connection as an illustration of the results of slight modifications, we give a sketch of the original "Goddard," as furnished us by the late Chauncey Thomas, of Boston, Mass., who was at one time in the employ of Thomas Goddard, the builder from whom this vehicle took its name. The sketch of the standard accompanying makes clear the change without a radical departure from the original idea. While the standard type is recognized by most builders, there are some who have made meritorious changes without loss of individuality.

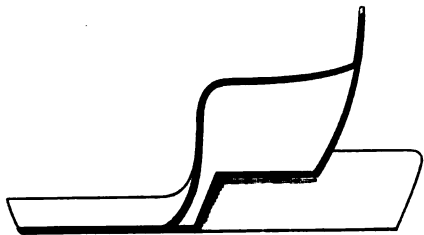


FIG 10. IMPROVED CORNING.

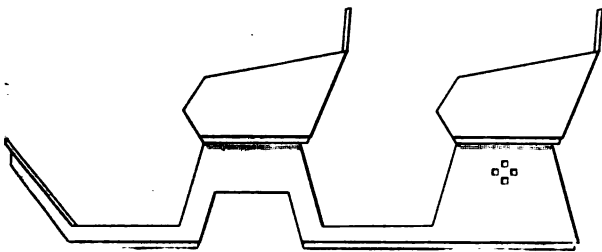


FIG 11. SURREY WITH LOW COACH FOOTBOARD.

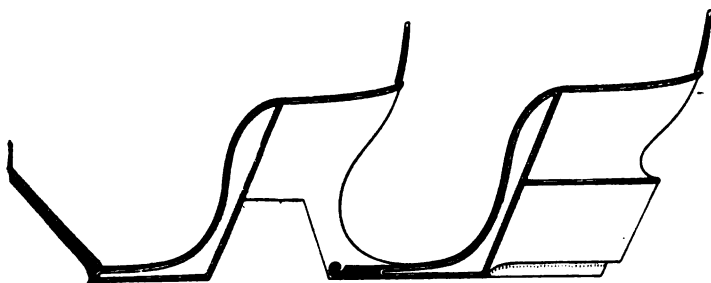


FIG 12. SURREY WITH HIGH COACH FOOTBOARD.

The "square box" represents by far the largest family, and while the opportunities with it are less than with others, many can be effected by a change in the depth of the panel, length, form of seat riser, while the change of the style of seat produces a most decided change. Now that low wood and wire wheels are popular, sides may be cut down. The prevailing dimensions for the square box body for bike wheels is 4 ft. 4 in. long; side panel, 6½ to 7 in. high; height of seat, inside measure from bottom boards to top of seat frame, 12 in. The latter measurement must be retained, but the depth of the side panel may be changed to any height between 7 and 5½ in. The runabout body belongs to the "square box" class, but it differs in dimensions. The length is 59 in.; depth, 7½ to 8 in. This increased depth does not interfere with the general appearance, owing to the increased length of the body, nor would a deeper side panel, if the high wheels are used; but with low bike or wood wheels a 7½ in. panel should be the maximum limit. Among the modifications of the square box is the giving of a slight swell to the side and end panels, but unless this swell is very slight it does not give a pleasing effect.

Seats for square box bodies may be deep or shallow. When deep, stick, spindle, or panel may be used. The tendency of late has been to use very deep panel seats, and to trim with heavy tops. When this is done the entire gear should have a heavy appearance to correspond with the body.

The "Corning" is a well established type, and one that admits of many changes in lines without materially changing the character. The general rule for the panel at the cutdown to be one-third the entire depth of the side panel at its deepest point; that is, under the seat line. This style will bear the using of moderately deep seats, but when a top is used the seat should be paneled and not less than nine inches high at the lowest point.

The "Concord" has long been a favorite wagon throughout New England, and was at one time equally popular in the South, as its peculiar gear and suspension insured a durable and comfortable riding vehicle over the roughest of roads. It lost its popularity, in a measure, in the early sixties, and was little known outside of New England until within the past ten or fifteen years; but since that time it has again come in use, and now finds a market in every part of the country. In its modifications the wooden grasshopper springs have been omitted, and a panel side substituted for the

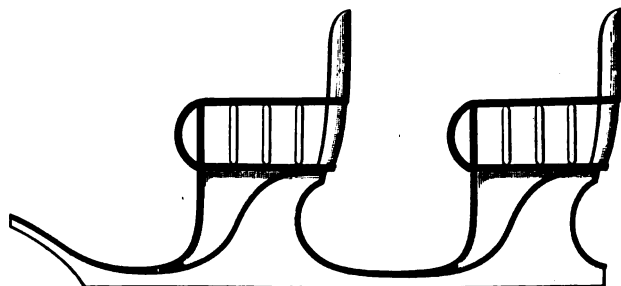


FIG 13. STRAIGHT SILL SURREY.

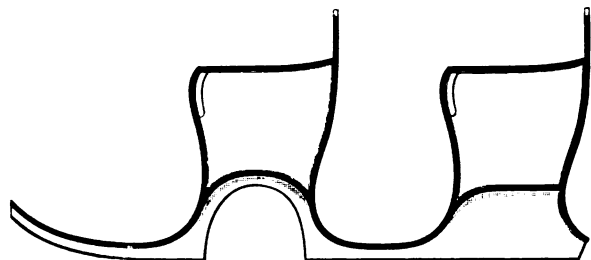


FIG 14. CUTUNDER SURREY.

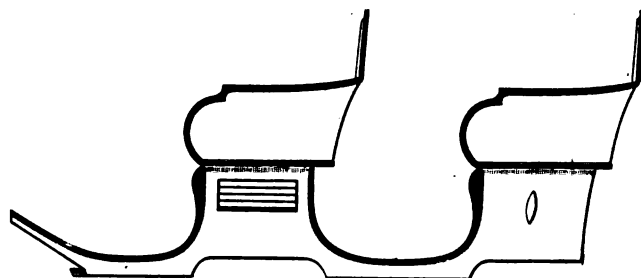


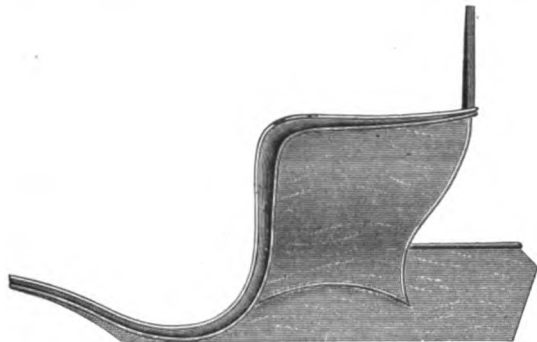
FIG 15. NEW MODEL SURREY.

solid worked out sides and ends. This permits of a variety of changes in the appearance of the body, without robbing it of its original lines.

The bracket front is claimed to have originated in Newark, N. J., where it was designated the "Carter" buggy. It had a body of the stanhope form, without the stanhope pillar, and was hung high upon four wheels, straight reach gear. Subsequently the bracket front was applied to numerous styles of body, and their general appearance has been materially improved thereby. The designer need not waste time in efforts to originate an absolutely new style so long as he has so much of a field in which established lines serve as guide posts or studies.

Next to the buggy, the surrey may be said to lead. This general family of vehicles has as a cardinal feature simplicity of form. So far as can be learned, the original "surrey" was a two-passenger, no top wagon, modeled after the Whitechapel cart body, built by a leading New York City manufacturer in 1872. The original four-passenger surrey appeared about two years later. It differed from the one of 1872 in being extended at the back end enough to allow

for a full size extra seat, the entrance to which was made from the front, the front seat board being split and hinged, so that it could be lifted out of the way of the passenger. Its gradual changes until the present character was reached extended over a period of years, but for a decade or more the "surrey" has been the most popular four-passenger vehicle in use. To show how extended its variety we looked over a number of catalogues and counted thirty-



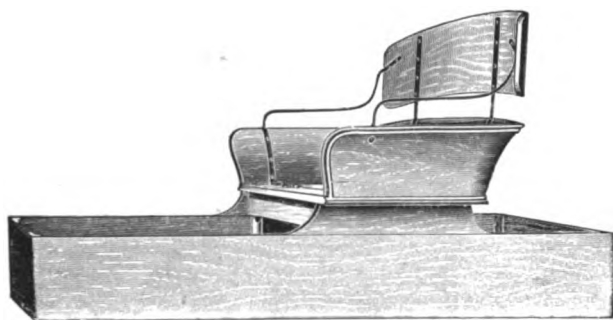
PHAETON BY FRANTZ BODY MANUFACTURING COMPANY.

five distinctive patterns, some plain straight sill, others plain but made with a cutunder, others more elaborate with and without the cutunder. We mention this to illustrate how popular the vehicle is, and to encourage designing in its class. The name "surrey" is now so closely identified with four-passenger family carriages that their construction has become a very large feature with all manufacturers who cater to that class of trade.

H. A. Horton, of New Haven, Conn., is one of those fortunate beings whom nature has endowed with special skill and given him the traits of character that enable him to make the best use of nature's gifts. He learned the carriage body making trade, designing, drafting and constructing, and after a long experience as a workman he begun the manufacture of bodies of a high grade for the trade, and today is able to furnish to carriage builders, as well as automobile manufacturers, about anything that their trade may call for. If a manufacturer has a general idea of what he wants a rough pencil sketch will serve Mr. Horton as a key and he will make a body to suit. He carries all standard styles, and being up-to-date, the carriage man who buys of him will not be behind his neighbors.

The Cincinnati Panel Co., of Cincinnati, O., is one of the large western houses that make bodies for the trade, and good bodies they are—stylish, well made and O. K. in all respects. They carry large stocks of standard bodies, buggies, stanhopers, surreys, etc., and can fill orders promptly for special trade. They bring out new styles each season and are therefore able to keep well up to the trend of fashion. Such companies are a boon to carriage builders, as they can supply whatever may be called for, and fill orders promptly.

W. H. NEWTON & SON, located at Cortland, N. Y., where they manufacture bodies and seats. Also top and trimmings. The body illustrated herewith is the No. 84. Buyers of bodies of this character will do well to consult this firm.



SOLID SQUARE BOX BUGGY BODY.

The manufacture of metal bodies has been tried heretofore, but the results have not been gratifying, and it has devolved on the Eastman Metallic Body Co., of Cleveland, O., to put out a practical reliable body—one that will not rattle, has corners that do not break and finished by baked enamel in the highest manner. This is one of the new things in the body line.

The ability to purchase vehicles in the white, ready ironed, makes it possible for the small manufacturer to supply his customers with

any desired kind of a vehicle, from a light buggy to a brougham, and thus save to himself a customer who might be tempted to go elsewhere.

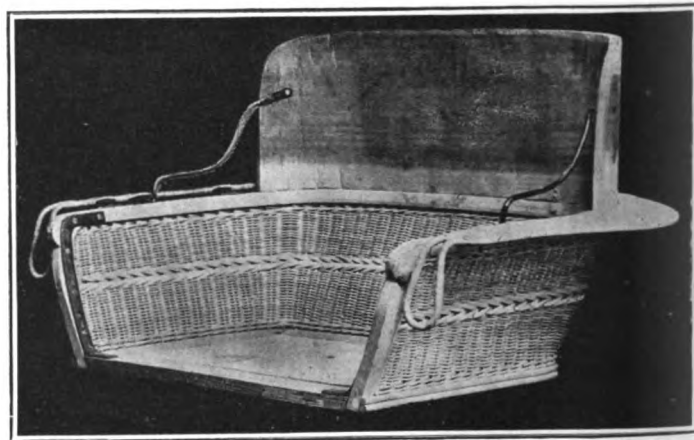
Miller Bros., of Amesbury, are among the leaders in this line, and there is no kind of a carriage that they cannot supply. They are extremely artistic in their styles and are careful as to workmanship, nothing being left undone to keep their vehicles up to the times in every respect, and the result is that they get orders from the best builders in all parts of this country and have a fine export trade. Their work is high grade and meets the requirements of the best buyers.

Lee J. Aubry Carriage Co., of New Haven, Conn., builds all kinds of up-to-date vehicles, making a feature of heavy pleasure carriages, busses, etc., and furnishing them in wood and iron. They also put up coach and automobile gears and the trade can purchase the products of this house without any other guarantee than the builders' word, as they build nothing that will not stand a "high grade" test.

The King Spring Co., of Buffalo, N. Y., make a full line of bike wagons, buggies and surreys, and automobile bodies, and the carriage maker who may want a regular line as a specialty can procure it ready for the painter and trimmer, or, if he prefers, trimmed ready for the painter. They build up-to-date vehicles, and allow nothing to leave their factory that cannot stand a critical test as to quality of material and workmanship.

The Buffalo Spring & Gear Co., of Buffalo, N. Y., make a specialty of furnishing the trade with a line of bike wagons in the white; just what are required by small builders who do not attempt to make up fine vehicles for the custom trade, and what the large builder often needs to fill his orders. This company does not attempt to furnish full lines of carriages. On the contrary, they confine themselves to a limited number of styles and make them up high class in every particular.

THE Rattan Novelty Company, of Indianapolis, Ind., are extensive manufacturers of rattan and reed articles for carriage makers' use. They have recently enlarged their facilities in order to meet the

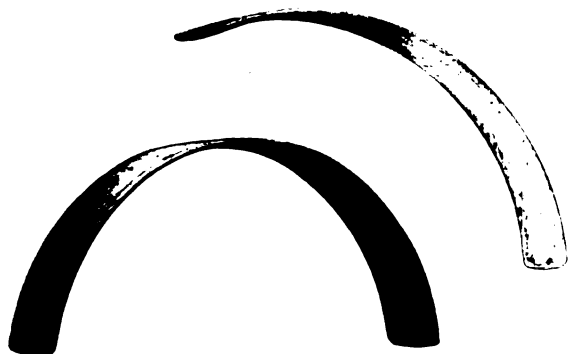


RATTAN NOVELTY CO. SEAT.

increased demand of the carriage trade. They now make their own wood and iron work, which enables them to furnish their goods at the lowest price consistent with good work. They are constantly adding new lines, and have lately brought out a new design that will commend itself for its cheapness and good qualities, and which they claim is one of the best designs of seats on the market. They want the trade to be assured that they finish their seats complete, thus saving the cost of shipment of the frames to be wickered. They are devoting much study to the wants of automobilists, in the way of umbrella baskets, fenders, dashes and bodies. Customers can have their own designs worked up without fear of some competitor obtaining the same. Any style or design can be furnished to order. At present the company are shipping goods to carriage builders in all parts of the country, and will do all in their power to satisfy the carriage and automobile builders.

Automobile builders will be interested to learn that The Dann Bros. & Co., of New Haven, Conn., manufacture fenders for use on motor vehicles. These are $\frac{3}{8}$ inch thick of built-up wood veneers and held together by a waterproof process which makes them durable, which feature added to their lightness and strength provides a most excellent

article for the purpose for which it is designed. This company has recently purchased the business formerly conducted by The Bowers Manufacturing Co., of Newark, N. J., manufacturers of built-up



WOOD FENDERS FOR AUTOMOBILES.

wood veneers for coach tops and panels. The roofs being bent to the curves required, any desired curve can be had to order. The covered top has always been a source of trouble to the carriage builder, but we are assured that the Bowers process gives a panel that is free from the annoyances so long prevailing. These are made in a variety of sizes to fit them for all styles of wood roofed pleasure carriages and business wagons. Their coach and body panels are three ply, $\frac{3}{8}$ of an inch thick.

CARRIAGE GEARS.

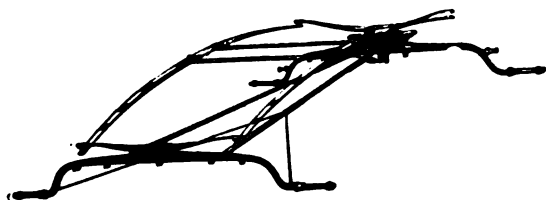
The manufacturer of gears as a distinct industry dates back about fifty years. The idea was not well received by carriage builders, and it was slow work getting them introduced. The gear builders however made many improvements, some of which were patented, and by the use of these improvements, and by careful workmanship, they forced the carriage maker to recognize the value of their products, and to make use of ready ironed gears that were the product of skilful men. To the builder who found difficulty in procuring



FITCH GEAR.

skilled wood and iron workers on platform gears these ready made gears proved a great boon, and there are few who build heavy vehicles who do not find it to their advantage to purchase the gears made by the manufacturers of gears ready for use.

One of the oldest houses in this line is the Fitch Gear Co., of Rome, N. Y. Mr. Fitch has been making gears for the trade for the last twenty-eight years, beginning with platform spring wagon gears for heavy vehicles. About twenty years ago he began the



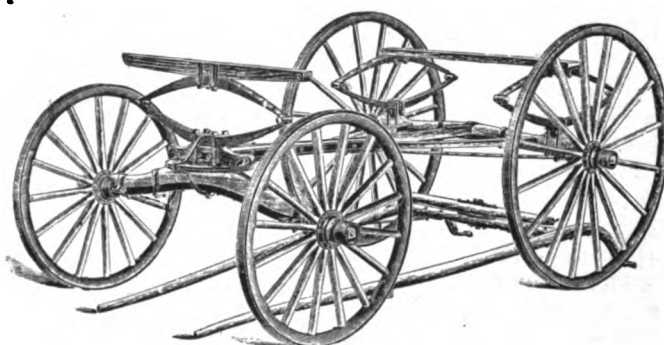
FITCH IMPROVED BIKE SIDE SPRING GEAR.

manufacture of perch "duplex," and since then has added all lines of perch as well as platform gears. In their manufacture he uses many patented attachments of value, making it possible to furnish the trade with about all they would like. Among those that have made this firm popular is their "duplex" for spring wagons, three spring combination, double elliptic drop axle for grocery and laundry wagons, and the Moyer "Banner," of which they are the

sole manufacturers. In introducing his business Mr. Fitch had to combat with the prejudice of builders, who doubted the ability of anyone out of their shops to make satisfactory gears, and his first year's sales amounted to eighty gears. At the recent trustees' sale of the Pell gear works at Rome, N. Y., Mr. L. M. Fitch purchased all the patents owned and controlled by that company.

The manufacture of gears calls for a variety of kinds and styles, if the business is to be made a profitable one to the gear manufacturer and to his customers. This fact is recognized by none more than the Schubert Bros. Gear Co., of Oneida, N. Y., who are also manufacturers of vehicles in the white. This company's line runs largely toward the lighter grades and specialties, patented and otherwise. These consist of side springs of various patterns as well as cross and elliptic spring gears.

The Selle Gear Co., of Akron, O., is another company that has won an enviable reputation for the quality of gears produced. They have special gears, such as Selle's patented trussed platform for truck, omnibus and other heavy vehicles, also half platform, three spring and wagon gears, together with coach and hearse gears; in fact there are few gears that they are not prepared to offer to the trade, whether light or heavy. One of their popular gears, the Concord three-spring express, is illustrated herewith. It, like all other of their products, is made up of high quality material, as the company use the best oil tempered springs, high grade Concord, steel axles, with hard boxes and hard spindles. Their workmen are



SELLE THREE SPRING GEAR.

skilled and great care is taken to insure the best workmanship throughout. This fact insures to the buyers a quality of goods that cannot fail to give satisfaction. The wagon trade throughout the country will find it to their advantage to purchase gears ironed and in the white, they making their own style of body on platform, by so doing supply their customers with far more desirable vehicles than if they undertake to build the gears, as well as the bodies.

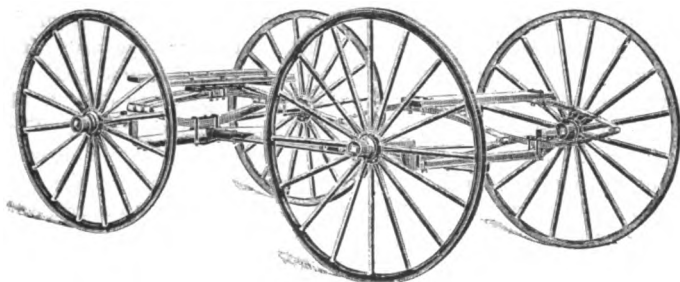
Those only who have skilled gear workers can hope to produce as satisfactory work as that made by men who devote their entire time and study to the making of gears. The buyers of gears in the white can get them shipped at moderate freight rates, as they can be handled at less cost than painted vehicles.

Another large company and one that bids fair to be the largest exclusive gear manufacturing company, is the Akron Gear Co., of Akron, O., as they now own and control all of the patents of the "Akron" gear, the Nichols patents and the Holman patents. They occupy their own buildings situated on the B. & O., Erie, Penna., P. & W., and C. T. & V. R. R.s, at Akron, O., which is located in the center of the hardwood lumber district and adjacent to the large iron producing markets. The buildings they occupy are large and complete, equipped with all the latest labor saving machinery. The new blacksmithing shop in progress of construction is over 100 feet long and 50 feet broad.

Mr. M. Otis Hower, proprietor, was formerly vice-president and chairman of the executive committee of The American Cereal Co., of Akron, O., Chicago, Ill., and Cedar Rapids, Ia., the American Cereal Co. being the manufacturers of the celebrated Quaker Oats which has world-wide reputation, and as Mr. Hower is a firm believer in advertising, expects to develop a fine business in every part of the world where there is any possible chance of introducing platform spring wagon gears. Mr. J. H. Nichols, who is superintendent of the wood-working and construction department, was for many years with the Selle Gear Co., of Akron, O., and an acknowledged expert and authority on gear work of all kinds. Mr. Nichols is an inventor, having taken out some very valuable patents which are now owned and controlled by the Akron Gear Co. Mr. T. H. Holman, the inventor of the celebrated "Holman" gears,

formerly in business as the Holman Gear Co., of Valparaiso, Ind., will have direct charge of the construction of the "Holman" gears and such other iron and steel specialties which the Akron Gear Co. intend to add to their line as fast as possible. There is a growing demand for first class platform gears of all kinds which are manufactured on honor and guaranteed in every particular, as the large manufacturers concede that a house making a specialty of the gear business only, can make a better gear for less money than it is possible for any firm to produce in small quantities. The Akron Gear Co. now has a line of patented gears numbering 393 sizes and styles, which they claim is the largest and most complete gear line ever offered to the trade by any one in the world.

While on the subject of gears we wish to call attention to a line furnished by W. W. Boob of Cincinnati, known as Boob's drop axle



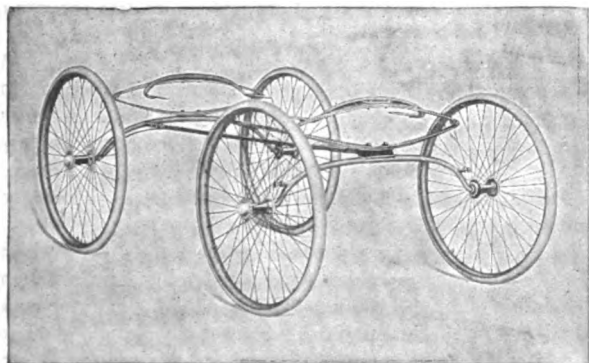
LOW DOWN GEAR.

and single elliptic spring gear. This gear is specially designed for "low down" wagons. It has a short turn fifth wheel set eight inches back of the axle, which makes it possible to turn the wagon in a much shorter space than is common with this class of vehicle. The accompanying illustration shows the completed gear.

Gears for low down short turning are a specialty of W. F. Kramer, of Dayton, O. These gears are of peculiar construction and are designed for all kinds of delivery wagons, as they permit of a body being hung low without compelling a long turn. With this gear a straight side wagon can be turned as short as though it were a cut-under. It follows, therefore, that no peculiar construction of the body is required.

Gears for platform wagons can be purchased complete of iron, steel or wood of the Allentown Platform Co., of Allentown, Pa. Some of their gears are patented, one of which is the "Philadelphia wooden platform." This company confines their product to flat farm wagon gears and can therefore furnish a line of desirable goods to wagon builders, many of whom would use platform if they had competent workmen at their shops. The ability to buy ready made saves further anxiety on that subject.

In the line of gears an entirely new class has been introduced and for the past two or three years it has played an important part in the vehicular industry. This line is best known as "pneumatics," and the complete gears are furnished by several companies. Among those who supply these gears, furnished with wire wheels, is the I. A. Weston Co., of Syracuse, N. Y. The illustration herewith shows



PNEUMATIC GEAR.

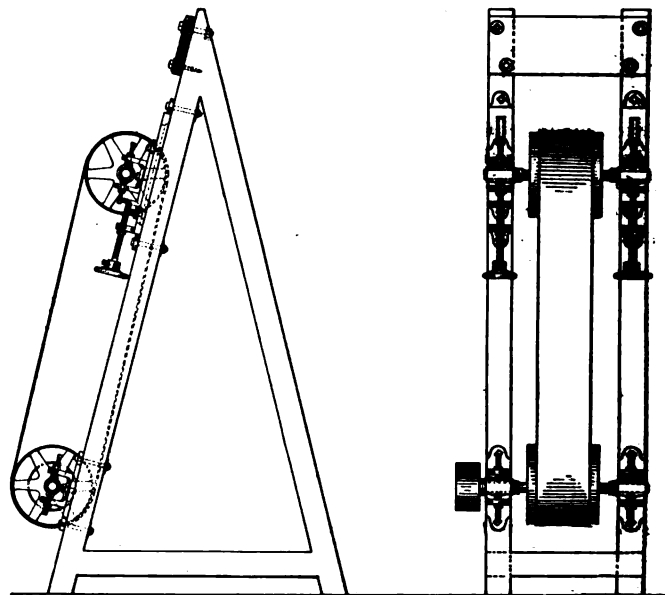
the gear in the condition that it is furnished to the carriage builder. The carriage builder can supply the body and paint and trim to suit his customer, thus producing as desirable a carriage as can be purchased in its line.

The sale of pneumatic gears, axles and springs and other parts of the vehicle, by one house or company that handles such goods only as

are manufactured by the members of the company, makes it an easy matter for the carriage builder of today to fill any order that may come to him, for single jobs of special construction, such as he could not make were he to attempt to make up all the parts. Such a company is the Standard Anti-Friction Equipment Co., of New York City. This company is controlled by eight or more companies of manufacturers of high reputation in their individual lines, and the carriage builder can purchase of S. A.-F. E. Co. such lines or combinations as their trade may call for.

Tubular gears are among the necessities of modern carriage building. No carriage builder can afford to make them, unless he is confining himself entirely to that line of vehicles. One of the companies that makes a specialty of high grade tubular gears is Smith Stampings Factory, Milwaukee, Wis., manufacturers of the "Hercules" tubular running gear. These gears are sold in the gray only. It is claimed for these that they are 50 per cent, lighter than solid gears, of equal strength, and cost no more.

In connection with gears, it may be well for us to consider a machine that is specially designed for cleaning off the wood and iron after the wood has been cemented to the iron. J. W. Curry of Cincinnati, O., makes a specialty of three articles that are needed to do this work well. The first is a special glue for cementing the bed to the axle. This is known as Star Axle Glue. The second is the solid woven cotton belting, for sand and emery belts. These belts are made endless one to six ply and 1 in. to 36 wide. The third is an upright sanding machine made especially for sanding



UPRIGHT SANDING MACHINE.

and dressing down the beds that have been glued to axles. This is a labor saving machine. It does not require any shaving on the beds where the machine is used. It will dress any bed without shaving and will do the work almost three times as fast as it can be done by hand. These three articles go hand in hand, first a superior glue for cementing the bed to the axle, second a machine that is adapted for the work and heavy belts that are made endless to do the work that is required of them. This machine and appliances are meeting with much favor with the largest concerns in United States and Canada.

Bike wagon axles and forgings, of a superior character, are furnished by the Weston-Mott Co., of Utica, N. Y. These forgings and axles are of a high grade and the form given to the axle is a true truss and the metal is so distributed as to insure the maximum strength with the minimum of weight. The danger point, at the junction of the axle and rim, is thoroughly guarded. They are forged round or swaged and are made in sizes that fit them for a range of vehicles from the light buggy to the four passenger surrey.

Steel rims have become an important element of wheel construction, now that rubber tires of various kinds are in demand by carriage and automobile builders. These steel rims are made for wire and wood wheels, for one inch up to four inch tires. Among the large manufacturers in this line is the Wilmot & Hobbs Manufacturing Co., of Syracuse, N. Y.

Premier gear sets, manufactured by the Premier Manufacturing Co., of Hartford, Conn., have proved a boon to carriage makers who wished to keep up with the times in the manufacture of bike and pneumatic wagons. These are made up ready for use, or are furnished in parts, and as the company has twenty-nine styles and sizes for wood and wire wheels it is an easy matter for them to meet all legitimate wants.

Automobile gears are interesting carriage builders, as they can be purchased ready for the bodies and thus enable the carriage man to take orders for automobiles, make the bodies to suit the taste of the customer, and to paint and trim the vehicle, thus making automobile building a branch of their business. Two companies that make such gears are Shaeffer, Bunce & Co., Lockport, N. Y., and the Reading Automobile & Gear Co., of Reading, Pa.

Woodworks of gears, ready for the smith shop, are another of the modern advantages. These can be had for all kinds of vehicles and of standard and special patterns, making it advantageous for the carriage builder to purchase specialties even if he makes his own regular lines of gears. Large factories have grown up in districts where lumber is easily obtained, thus enabling the buyer to reduce freight expenses to a very low point. Among the large houses in this line is that of Bringardner & Conkle, of Junction City, O.

An old and reliable house in the gear line is the J. A. & D. P. Cooper Co., of Struthers, O. This company have long been known as manufacturers of gear wood of their own standard patterns and as makers of gear woods to order. Their ironed up sets have been standard goods for many years, and their strong hold is due no doubt largely to the carefully selected timber and the good workmanship. The gear maker is not a necessity in small shops, so long as such gears can be purchased, and the large shops find it to their advantage to use them as well.

Andrew Kimble, of Zanesville, O., confines his attention to gear woods for the lighter grades of carriages, furnishing ironed or in the wood. He has a patent bent reach gear with fifth wheel and king bolt complete. His trademark, "Young Tough Butts," is well known to carriage men, while the quality of his gears fully sustain his reputation for good material and workmanship, and as he makes gear woods to any pattern, the trade can handle his products to an advantage.

AXLES AND SPRINGS.

A company of axle manufacturers that yields to none in push and perseverance, is the Cleveland Axle Manufacturing Co., of Cleveland, O. An illustration of what they can do was recently evidenced by them. On November 22 fire destroyed one of their buildings, a brick structure 300 by 50 feet, containing their forge department, engine rooms and electric plant, and on December 23, just twenty-five working days thereafter, they resumed work in a new building, covering the ground that had been burned over. It goes without saying that such a firm is up to date in all things manufactured by them, and that carriage or automobile builders in want of axles can purchase of them all lines of desirable goods of this character.

The same may be said of the Concord axles, manufactured by the Concord Axle Co., Penacook, N. H. This company make all kinds and all sizes, and of fine quality, material and workmanship being of the highest order. A leader with them is their Concord express axle, a standard axle for express, grocery, milk, bakers and other delivery wagons. They are made of selected steel, the arm is extra large in front of the collar, giving great strength at that point, where so many fail. All parts are interchangeable, boxes turned to a true taper outside, and finished throughout in the best manner.

The Spring Perch Co., of Bridgeport, Conn., is one of those manufacturing companies that can always be depended upon. They produce every kind of spring called for by builders of carriages, and make a feature of "rubber open head," in which a packing of rubber eliminates all rattle and allows an easy motion. They produce springs of every pattern to order and allow nothing to leave the factory that is not first class.

The single leaf spring is a specialty of the J. B. Armstrong Manufacturing Co., of Flint, Mich. This spring has been thoroughly tested and it never loses in popularity by such tests. The company also make a two leaf spring for buggies, which gives all the comfort of any other elliptic spring and has advantages that commend it to the trade. "The Armstrong" finds markets everywhere, as the company manufacture all kinds of carriage and wagon springs.

South Egremont, Mass., cannot be mentioned to an up-to-date

carriage builder without bringing to memory the Dalzel Axle Co., one of the old and most reliable of American vehicle axle manufacturers. Everything that science, skill and good judgment can suggest has been aids to the firm, and the high merits of their goods is everywhere acknowledged. One of their specialties is their Collinge collar. It is a high quality article, but it is one only of their many high quality axles.

The Spears Axle Co., of Wheeling, W. Va., make a specialty of long distance axles, with the Collinge and other kinds of collars. They also make the "Concord Express Axles" and other desirable styles. They aim at producing nothing that cannot be honestly labeled "high grade."

"The Porter patent dust proof axle," manufactured by Lee & Porter, Dowagiac and Buchanan, Mich., is a long distance axle of proven merits. It has all the mechanical appliances that go to improve quality, insure wear and reduce friction, and gives to the carriage maker an article that can be guaranteed to give satisfaction.

Hartford Axle Co., of Dunkirk, N. Y., is one of the old axle companies that years ago won a reputation for fine goods, and what is of more importance, they have maintained that reputation both as to the mechanical quality of their goods and the features that entitle them to hold a place among the foremost axle manufacturers. They make all styles from the plain to the finest.

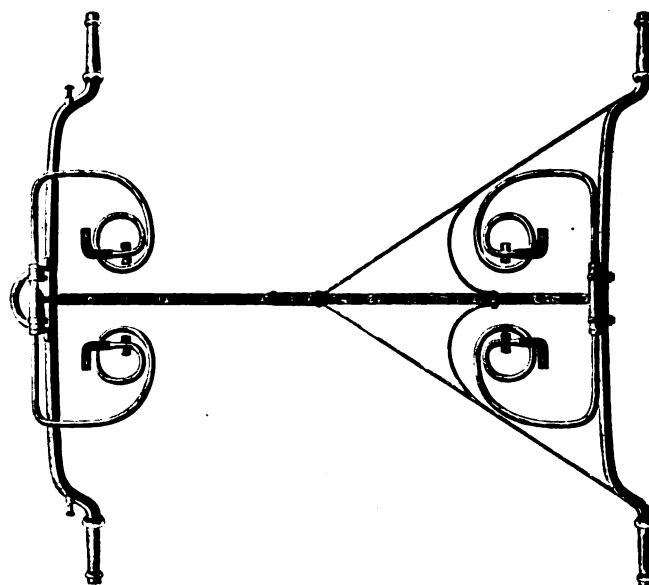
Bike wagon axles and the "Richards" long distance axles are two of the specialties of the Sheldon Axle Co., of Wilkesbarre, Pa. These axles merit the high praise given them by users, as they are made as good as skill, care and fine material can produce. The company is one of the old "reliables," one that like wine, "ripens by age."

The use of roller and ball bearings has introduced a new element in axle manufacture, and as a result there are a number of manufacturers who confine themselves to the production of axles specially fitted with these anti-friction devices.

The Bantam Manufacturing Co., of Bantam, Conn., is one of these. They make an axle provided with rollers so arranged as to reduce friction, give a firm, reliable rest for the wheel, and carefully guarded against dust, sand, etc. The special axle is known as the Morse Roller Bearing Axle, one that is alike suitable for trucks, wagons and carriages.

The American Roller Bearing Co., of Boston, manufacture a special system of roller bearings, suited to carriage, automobile, wagon and heavy truck work, as well as for other purposes where there is a revolving wheel on shaft. These goods have been shown in Europe as well as at home, and have proved themselves to be of extra high quality and they never fail to reduce friction to the lowest standpoint.

From the time of the introduction of the sidebar on the light road wagon, there has been a steady flow of patented springs to act with, or as a substitute for the sidebar. One that possesses much

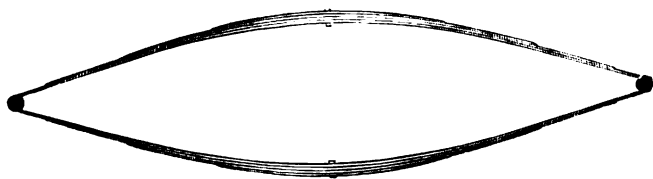


THOMAS SPRING AND GEAR.

merit and on use has proved itself possessed of the requisite qualities, is the Thomas patent spring, manufactured by W. S. Shuler & Thomas Spring Co., Amsterdam, N. Y., a combined torsion and spiral spring. The illustration shows it on one of the company's bike gears, making a neat and serviceable and very light gear.

The Grant Roller Bearing Axles appeal strongly to builders of wheeled vehicles through their simplicity and common sense qualities. The rollers are slightly coned and rest in the sheaves at an incline, thus insuring against friction by the end thrust as well as by direct pressure from the rim. They are manufactured by the Grant Axle & Wheel Co., of Springfield, O., who also manufacture a special fifth wheel.

Springs are essential to almost every kind of gear and all of the gear companies have specialties of their own, or make gears for special springs. The standard spring, one that holds its place and

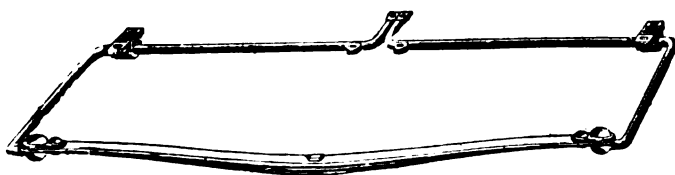


TUTHILL ELLIPTIC SPRING.

is always reliable, is the elliptic. It is not so many years since about all these things that were used, were manufactured by the carriage builder or importer. Men are now working in shops who can remember the time. Now all is changed in that respect. Few, indeed, of our carriage builders make springs, while instead of manufacturing we are exporting. These are sent to all parts of the world where vehicles are manufactured. As a rule, each country has its special style of pattern, but the elliptic has the preference. Among the leading spring makers in this country is the Tuthill Spring Company of Chicago, Ill. The illustration of the regular elliptic spring with button head shown herewith illustrates one of their lines. This company has been conducting business for over twenty-two years, and in addition to its product being used in every state of our union it has been exported very largely, and there are few place where spring vehicles are used that this company's springs cannot be found.

The name of "Timken" is one that has so long been favorably known to the carriage trade that any article for carriage makers' use that bears that name is at once accepted as useful and practical. The latest article given out is the Timken Roller Bearing Axle, manufactured by the Timken Roller Bearing Axle Co., of Canton, O. This device is constructed on scientific principles. The rollers are placed in boxes at each end of the box and are coned and pitched to give the most direct bearing and to reduce friction to its lowest point. They have been subjected to the most severe tests and have never failed. They can be had in a great number of sizes.

The Mulholland Spring Co., of Dunkirk, N. Y., are manufacturers of special styles of springs of more than usual merit. Their latest product is "The Ball Bearing Mulholland," a very light spring, for its carrying capacity and one that gives the utmost satisfaction to



MULHOLLAND BALL BEARING SPRING.

users. It can be said of the Mulholland springs that they are honestly made of the best material and by skilled workers. The buyer therefore risks nothing in point of service. The Mulhollands are made for buggies, surreys and buckboards.

The carriage spring has reached a wonderful state of perfection, but there is no relaxation on the part of manufacturers, and the result is that broken springs seldom come back to torment the makers. One of the successful companies is the Detroit Steel & Spring Co., of Detroit, Mich., who include in their products the making of channel steel tires.

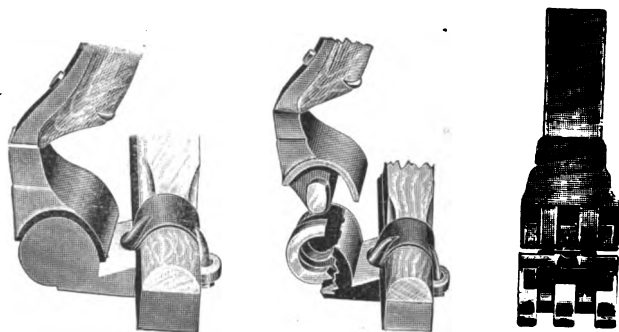
MISCELLANEOUS.

The production of shaft couplers and anti-rattlers has been more prolific in styles and kinds than any other part of the carriage. Scarcely a month passes without a new one being introduced, and the enthusiasm of each inventor is such that the last is "the best."

It is not our province to gainsay the claim of any, old or new, but as it is such an important auxiliary we must from necessity class it among the indispensable articles that contribute to the comfort and convenience of the carriage owner. THE HUB has in times past given full descriptions of the old favorites and the newer candidates.

Bailey's "Bull Dog" is not vicious, but when it gets a hold it retains it. The fact is one that commends shaft shackles to carriage builders and users. Shafts fitted with these can be attached to any of the old style bolt clips where sizes permit. They are manufactured by S. R. Bailey & Co.; headquarters, Amesbury, Mass.; range, wherever shaft shackles are used.

One of the latest, and one that has not been noticed by us heretofore, is the Bixby reliable thill coupling, manufactured by the Bixby Coupler Co., of Erie, Pa. The illustrations herewith show it opened and closed. The manufacturers claim that they are simplicity itself, two irons only, adjusting themselves by raising shafts, to true circles inside and outside, so perfect and non-wearable, where months in use show no perceptible wear. Their rigidity gives additional strength to shafts and poles. While there is a spring placed in recess



BIXBY THILL COUPLERS.

back for that purpose, they are seldom used. They are the strongest coupling made, as they have stood a tested tensile strength of 9,700 lbs., the coupling still worked all right. They can be nickel plated, or given any finish, and have neat and attractive appearance.

It is claimed that more patents have been taken out for shaft shackles than for any other part of a carriage, but as few have survived the test of time, it follows that those that have possess real merit. Of these the Eccles Adjustable Shaft Eye and the Ball Bearing Shaft Coupling, manufactured by Richard Eccles Co., of Auburn, N. Y., are conspicuous representatives. The construction is simple and the quality of a high grade.

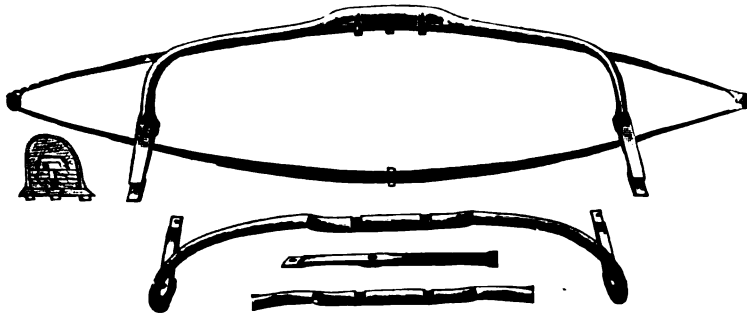
Judged by the test of popularity, the Bradley shaft coupling possesses merit of special order. Then, too, the price is low. The forgings are of fine steel and the workmanship is of a high character. They are made for all sizes, from a light road to a heavy express, and they are used for all. They are manufactured by C. C. Bradley & Son, Syracuse, N. Y.

The times call for quick work, and the man who owns a carriage is loth to waste time removing nuts and bolts when changing or removing shafts for any reason. That fact has led to the introduction of quick shifter shackles, and incidentally to the anti-rattler. The Ideal Manufacturing Co., of Oneida, N. Y., supply an article in their Ideal Quick Shifter that fills the requirements as to eliminating rattle and as a quick shifter.

Charles Cathan, of Beloit, Kans., has brought out a coupler for which he claims special merit. The points that he makes are that owing to its peculiar construction it will take up all constant wear, as it is open under the front and rear end of the jaw, and still the draw bolt has a full bearing or wearing surface. It will grip $\frac{3}{8}$ or $\frac{5}{8}$ eye bolt and will wear longer without tinkering with and not rattle than any coupling made, and that it is an absolutely safe and a quick shifter. It requires no special crimped packing, as any old piece of leather will do. Can be used without packing if desired. It will not side rattle or rock or lop sideways in the coupling head like many others. This coupling has no pulling strain on the spring or jaw. If the spring should break the jaw will not fly open and let the eye out, like other couplings. To attach this coupling to the axle, first spread the spring a trifle, which will draw the upper end of the link from the slot of the draft iron. This gives you a free access to turn up the clip nuts. The manufacturer asks a trial order. If the coupling does not prove satisfactory it can be returned at the manufacturer's expense.

Metal body hangers are rapidly taking the place of the wood spring bar and short loops, saving time and money and giving a more dur-

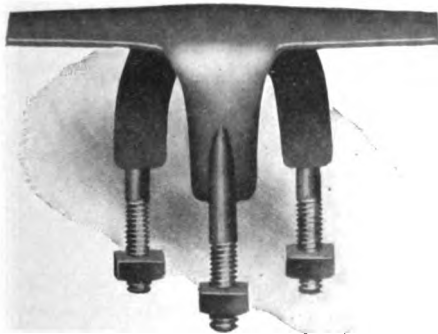
able and cleaner looking job. Among those now receiving attention is the "Standard body loop," manufactured by the Keystone Forging Co., of Northumberland, Pa. The claims for this loop are that it can be easily attached, no bolts being removed from the spring bolts,



METAL BODY HANGER.

and it can be interchanged with the ordinary wood spring bar. This loop should receive the attention of progressive builders. This loop has been on the market a little over two years, but it has met with so much favor that the company have doubled their capacity for their manufacture several times in order to keep up with the demand.

The great advantage that the present carriage manufacturer has over those of half a century ago, is their ability to purchase parts, such as fifth wheels, etc, made up in a manner that is simply impossible, in the great majority of carriage shops. Then, too, the manufacturers of these materials have given their construction careful study and many improvements of great merit have been made. Among the companies that have contributed largely to this end is The D. Wilcox Mfg. Co., of Mechanicsburg, Pa. They turn out a line of superior quality and workmanship and have special ties that deserve the consideration of all carriage builders.



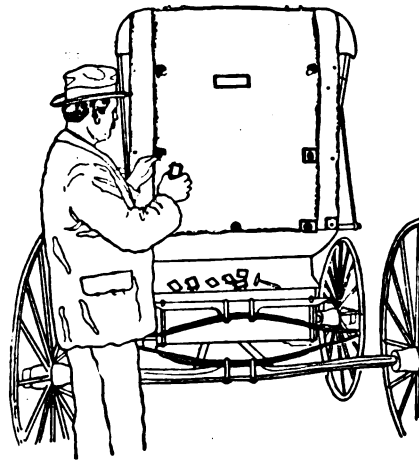
THREE PRONG SADDLE CLIP.

One of these is their special single reach gear sets, which are something fine, a particular feature of which is the new three prong saddle clip which gives a Brewster appearance on single reach work, something that has never been accomplished before. Their three prong clip, rear king bolt, is another specialty. It is new, yet it is no infant, having been on the market for six years and pronounced by the largest builders to be the best constructed mechanical set ever produced. The new feature is the clip king bolt part which is forged integral to do away with bolts, etc., when applied to the axle bed. The points that appeal to the trade is, when applied to a vehicle it looks just like a regular king bolt; no holes through the head block or springs and only one adjustment for wear. No parts turn on a nut.

Among the many appliances that go to make a carriage the more desirable, by doing away with annoyances, and adding durable features, are improved wear irons. Originally a plate of iron was deemed sufficient, but users now demand something better, and that something is furnished by The Boston Roller Chafe Iron Co., of Boston, Mass. They produce forty different styles to fit the different jobs. They have, however, recently perfected a new combination roller chafe and stay iron adapted for short geared, cutunder jobs where the front wheel strikes the rear stay. The stay is made of superior drop forging, fifteen inches in length with bosses to take a four inch roll, five inch ends on the outside to allow for welding on the points. This makes the neatest iron that has been used for the purpose, and from the orders already received they expect a large trade on the same. The company claim the "Boston" to be a mechanically correct roller chafe iron. It never needs any care, as the steel roll is chambered out to receive an oil-tempered steel spring, and the cavity is then filled with a patent lubricator that heat or cold does not affect. A steel disk it set upon the spring, filling the chamber perfectly and extend-

ing out about one quarter inch. One end of the roll is cone centered; also the steel disk at the other end to receive the cone steel bearings that are screwed through the frame. The disk is pressed into the roll which is set in the frame, where it is adjusted, the bearing being held from turning by a check screw, and further, the "Boston" does not rattle, does not rust, and always rolls.

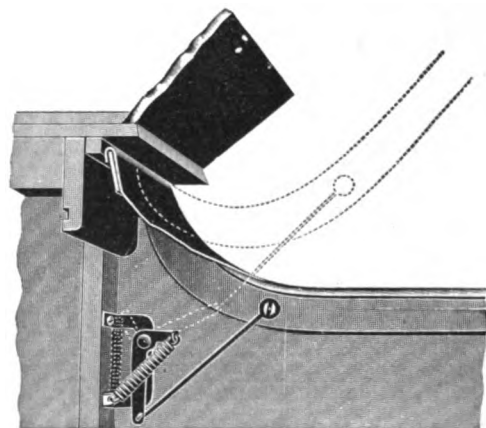
The trimming department has not been overlooked by those who are striving to make the carriage better in every way, and to cause less annoyance by removing minor imperfections, as well as perfecting the general appearance. One of these devices is the Walter Bros.' Carriage Curtain Patch Fastener. This patch was patented by Walter Bros., of Dallas City, Ill., December 12, 1899, and since that time its use has rapidly advanced until at the present time the demand is greater than the supply, proof sufficient to its value to the trade, both in the United States and Canada. The illustration is a representation of the manner in which the patch is adjusted without removing the



CURTAIN PATCH FASTENER.

top, to repair the back curtain where the eyelet has been torn out, making a neat and far more lasting job than when sewed on. They are being used in foreign lands, even to far away South Africa, as well as here. By using this patch no stitches are required, and time as well as the curtains are saved. Any one who will stop and consider the merits of this fastener will agree that it rightfully deserves the high place it has received from the trade in this and other countries. The best of leather and sheet iron is used in their construction and they are guaranteed as to reliability. Those who are not already handling them will make their business more prosperous by doing so. The manufacturers will cheerfully give any information that may be wished regarding them.

Covers for the rear end bodies, where this part is not paneled are recognized as necessary, and many are now being used. The one drawback is holding the covers in place. This seems to be overcome by Wilson's Patent Boot Spring, manufactured by King & Cook, of Moline, Ill. The claim made for the spring, which is sustained by

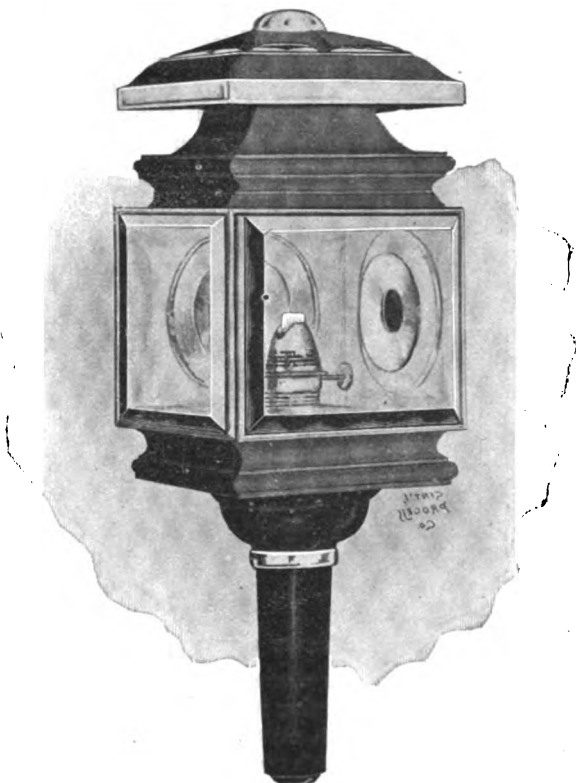


PATENT BOOT SPRING.

those who are using it, is that it is light but strong and durable. It will last as long as the buggy, whereas the cheap rubber springs last only a few weeks, and then unless they are replenished the boot is soon ruined. The spring holds the boot down better than any other, and what is a very great convenience, it holds it up also, thus avoiding pulling the boot out of shape by holding up one corner while putting packages in the buggy. Those who used them last year are

using more this year. The main pieces are stamped from sheet steel. The springs are made of good spring steel wire.

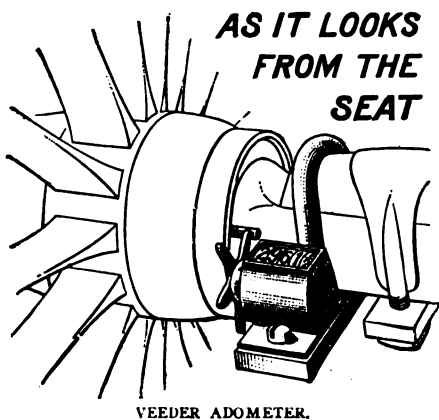
Lamps are not only a convenience, but they are in many localities a legal necessity, and therefore figure largely in the list of carriage supplies. The time was when the American carriage builder was compelled to import his carriage lamps, but that day is past, and now the American carriage lamp maker is a large exporter. The great variety of lamps on the market is due to the genius of our lamp makers, who are ever on the alert to put out something new. Among the western lamp houses that are making themselves felt in the in-



SQUARE BODY LAMP.

dustry is the firm of Thos. H. Corcoran's Sons, of Cincinnati, O. One of their lamps called the "Dutchess" is illustrated herewith. It has proven a very popular design. We also show the new style oil cup, which is the largest cup furnished by any lamp concern that caters to the wholesale trade. The company have a "hanger" showing their latest designs that they will be glad to mail to any builder on request. They claim to be the largest lamp concern in the country and their goods have a world wide reputation for style, quantity and popular price. They are now running ten hours a day right along, but their capacity is unlimited and they are in a position to take care of any contract no matter how large or small.

For those who are desirous of knowing how many miles they travel in their carriage or automobile, have a most excellent appliance for



VEEDER ADOMETER.

that purpose in the Veeder Adometer, manufactured by the Veeder Manufacturing Co., of Hartford, Conn. The illustration herewith shows the adometer attached to the front axle of a wooden wheel carriage. This can be attached easily and securely, and will register the exact distance traveled. Another pattern is used for the wire wheel. The price is small and the satisfaction given great.

THE CARRIAGE LABOR SITUATION AT CINCINNATI.

THE following communication from a prominent carriage house has been received by us, in answer to our request for a clear statement of the strike situation at Cincinnati.

CINCINNATI, Jan. 28th, 1902.

Editor of THE HUB:

Dear Sir—Replying to your favor of the 24th regarding the article which appeared in the January issue of THE HUB, relative to labor conditions in Cincinnati, beg to say, we are pleased to state that the strike situation in Cincinnati is in better position than that indicated in your last issue. A large percentage of the better mechanics have gone back to work; quite a number of the old ones have left the city, some of them have taken work outside of the carriage business, leaving only about 20 per cent. of the strikers on the streets to-day, and this is composed of workmen who are not what we would term practical carriage mechanics. The carriage manufacturers who were closed down last August have all their plants running in good condition, having imported from other sections of the country over one thousand carriage workers who are now employed in our factories, which are all run strictly non-union. As far as the manufacturers are concerned the strike is at an end, although the unions have in the past week bothered the Emerson-Fisher Co., who were not troubled heretofore, and whose painters left the factory on account of differences.

We would be pleased to have you place the true situation before your readers, and in doing so would suggest that you say something regarding the future labor conditions of the carriage trade. Manufacturers should not lose sight as they have done in the past, of the necessity of apprentices in our industry. The business has grown faster than we have made mechanics and not enough workmen to go around. Manufacturers throughout the country should give this their attention, as this is a very important matter to the trade.

Yours truly,

CARRIAGE MEN DINE.

THE Carriage Club held its regular monthly meeting and dinner on January 10th at the Grand Hotel, President W. A. Sayers presiding. Appropriate resolutions were passed on the death of George W. Brown, and arrangements were made for furnishing a floral tribute at the funeral. John W. McGrath made an address on "Malleables." E. H. Hargraves related reminiscences of his trip to England, and J. F. Taylor spoke on "Reciprocity." Those present were: W. A. Sayers, S. D. Baldwin, O. E. Walker, E. W. Hargraves, J. F. Taylor, H. R. Liebman, W. J. Evans, A. G. Brunsmann, H. Batterman, George Monteith, G. H. DeGolyer, E. D. Albrow, August Tietig, B. S. Fallon, W. E. Laidlaw, M. C. Center, Louis Buob, Jr., George W. Yarnell, J. P. Pollock, C. L. Stephens, Wm. G. Rossiter, H. Higgin, William A. Haven, S. S. Wilder, Wm. G. Nolan, F. H. Rose, L. A. Harker, C. C. Wick, Otto Armleder, Monte L. Green, John McGrath.

THE DECATUR BUGGY COMPANY.

THE Decatur Buggy Company, of Middletown, O., have issued their 1902 illustrated catalogue, gotten up in an attractive cover, a half tone portrait of Commodore Perry forming a center piece, which is surrounded by a gilt frame and gilt embossed decorations. The vehicle illustrations clearly show their leading styles of buggies and surreys, while a series of colored prints show side panels and decorations. The accompanying descriptions give full details as to dimensions, materials and finishing of the vehicles. Dealers will find it to their advantage to obtain a copy.

"HIGH SCHOOL."

THE Anderson Carriage Company, of Detroit, Mich., manufacturers of the "High School" line of light carriages, have issued their catalogue for 1902, containing about sixty illustrations of vehicles built by them, many of which are of new and attractive designs. This is a good catalogue for dealers to have when selecting stocks.

A MEETING AND BANQUET.

THE Buffalo Forge Co., of Buffalo, N. Y., best known to the carriage trade as builders of blacksmith's portable forges, blacksmith drills, tire benders, etc., but extensive manufacturers in other lines such as heating and ventilating and drying apparatus, electric-light engines, mechanical induced and forced-draft machines, power blowers and exhaust fans, gave their second banquet to the men in their employ representing their branch offices, as the closing event of their second annual meeting.



PROPRIETORS AND TRAVELING REPRESENTATIVES OF THE BUFFALO FORGE COMPANY.

During the first week of 1901 the company called the representatives of its various branch offices to the factory for a week's conference and discussion. The benefits from that meeting were so marked that they have been felt throughout the succeeding year, and so it has been decided that these meetings shall be of annual occurrence. About two weeks previous to the meeting the company sends out invitations and fixes the exact date. Each employe is requested to prepare a paper or technical article on an equipment furnished within the year, to be read and discussed at the meeting. The choice of the subject is usually left to the individual, by which means most interesting features, of widely varying natures, are described.

At the 1902 meeting, just completed, articles upon heating and ventilating installations of different characters, and, in short, fan-system applications to a large variety of industries, were read at three sessions each day and were afterward discussed by the assembled engineers. The meeting was followed by a banquet at The Iroquois.

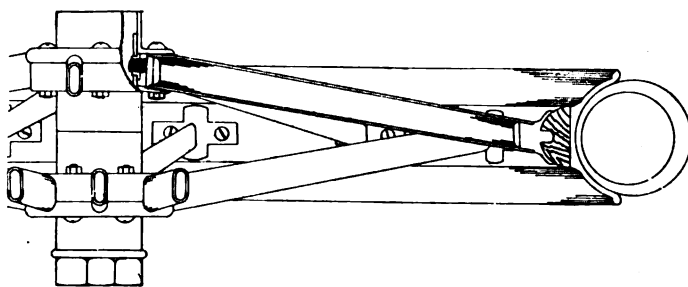
The company was founded in 1880, with an output of two portable forges a week, which capacity has been increased to about five hundred a week, and yet the forge department represents about one fifth of the whole, employment being given to about five hundred workmen in addition to the large number of engineers and salesmen. Such meetings commend themselves to employers. They tend to produce a unity of interests and are conducive to the good of employers and employed alike.



PLANT OF W. S. SHULER & THOMAS SPRING CO., AMSTERDAM, N. Y.

THE MERCER TUBULAR AUTOMOBILE WHEEL.

In this, the automobile and rubber tire era, the scarceness of good material for wood wheels makes necessary the use of some other material for vehicle wheels that will insure great strength, durability, lightness and a graceful appearance, and simplicity that makes easy repairs on the road. The wheels of self propelled vehicles are necessarily obliged to sustain and carry a considerable load, not only performing the office of sustaining the weight of the vehicle itself and occupants, but also of the motor and power and generating machinery. It is essential, therefore, that the wheels be strong and capable of upholding the necessary weight, and resisting the great lateral strain, get elastic enough to overcome rigidity. In order to be sufficiently strong it is essential that the wheels should have radial spokes, such as are employed in horse drawn vehicles, since such spokes are capable of sustaining weight. Wire wheels of the bicycle pattern are all right for what they were intended for, but when used for carrying heavy loads over rough and uneven roads, are found wanting in more than one particular. Furthermore, when the fine threads become rusty, as they are bound to do in course of time, the spokes will



MERCER TUBULAR AUTOMOBILE WHEEL.

give way and wheel collapses when least expected. These facts necessitate the needs of a substitute. The Mercer wheel appears to combine all the necessary qualities for a perfect automobile wheel. It has tapered oval steel spokes, which are claimed to be scientifically correct, yet so simple that any one can insert one or more spokes without removing the tire or taking the wheel from the axle. A wheel set upon its own bearings, while held in a gig, insures absolute trueness, each spoke wedge shape to a small degree at the hub, and firmly clasped in independent pockets, outside flanges being securely belted to the main portion of the hub. Spokes are also cushioned upon rubber in pocket, which give the wheel the necessary elasticity, yet permitting the flanges to be drawn up tight, making a perfect joint. The rim of wood gives option as to tire. The rim end of the spoke is constructed in such a manner that split rims are impossible. The short tennons on spokes prevents tensional slipping, spoke is also securely bolted to the channel. The rear flange may also be used as drive or sprocket, being bolted to hub and clipped to spokes, distributes the driving force equally throughout the entire wheel.

These wheels are made in various sizes, and for all bearings from a 4 pound, 16 spoke sulky wheel to those heavy enough for a steam dray. The accompanying cut shows a half section, from hub to rim, of 30 in. wheel with 3 in. pneumatic tire, for automobile. It has sixteen spokes, 1 by $\frac{3}{8}$ in. at the hub and $\frac{3}{4}$ by $\frac{5}{16}$ in. at the rim; weight, twenty pounds; carrying capacity, 15 volts. Further particulars can be obtained by addressing Fred. J. Mercer, Hyde Park, Mass.

"VEHICLES THAT GIVE SATISFACTION."

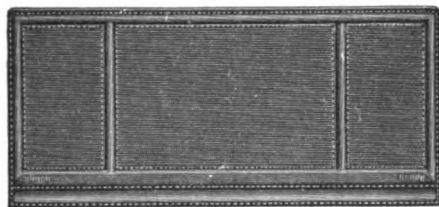
HUBBLE & WATERHOUSE Co., of St. Louis, Mo., use the above line on the cover page of their illustrated catalogue for 1902, in which they show a line of vehicles manufactured by them, consisting of buggies and surreys. The descriptions being minute in detail enables the buyer to clearly understand the construction. Their guarantee is all that can be asked for.

TO PREVENT IRON RUSTING.

In a suitable mortar, grind to an inpalpable powder, 1 part graphite mixed with 4 parts lead sulphide and 1 part zinc sulphate, and gradually add 15 parts boiling linseed oil varnish. Stir thoroughly and apply with a brush. This varnish dries quickly and protects the metals coated with it from oxidation. It can also be used for metal roofs.

METALLIC DASHES.

The metallic dashes manufactured by the Bennett Manufacturing Company of Hunt, N. Y., are rapidly making their way to the front. They are manufactured under letter patent granted to P. M. Barnes, of which patent they are sole owners and manufacturers. In appearance they so closely resemble the very best quality of leather that instances have been known of parties using vehicles equipped with these metallic dashes for months without being aware of it. The lapse of time discovers the difference especially in hot countries and in automobiles where the fumes of the gases have been found to



METALLIC DASH.

exert a deleterious effect on leather. They can be enameled any color. Those in russet, for natural wood traps, are very pretty and effective, and one advantage to a carriage maker is that every dash is exactly as the others, having the same frame as a leather dash. They are much stronger. Having a soft felt interposed between frame and cover they are pliable and elastic, while with a coat of airtight anti-rust composition on the inside of the metal they never rust or corrode. One eminent automobile manufacture, asked his opinion of these goods, responded: "Well there is a strong conservative leaning to the use of leather, but if steel dashes had been introduced fifty years ago and leather ones five, it would be pretty difficult to sell any but metal ones."

PARLOR CITY WHALEBONE WHIPS.

No carriage outfit is complete unless a good whip is at the command of the driver, and nothing comes so near filling the bill as a genuine whalebone whip. It alone possesses the peculiar "life" so desirable to its handler. A fine holly is attractive in appearance, but it is dead in the hand as compared with the whalebone. Among the most celebrated of whalebone whips is the "Parlor City" grade. This whip originated with and is manufactured by the Binghamton Whip Company of Binghamton, N. Y. This special article is made from one solid piece of best arctic whalebone, the bone running the

**Parlor City
Whalebone**

entire length of the whip from its snap and projecting through a fine mottled horn cap made for this special purpose. It is made up entirely plain with handworked thread buttons and is mounted in rich English style hand chased ferrules. It has a genuine buckskin loop under its thread cover to ensure durability, where the snap is attached, which protects it at its weakest place well. These goods are made in 6, 6½, 7, and 8 ft. lengths.

The same style of whip is also furnished in a genuine solid twist Calcutta rawhide, in one piece, from snap and running through the cap. This is not exceeded in style or durability by any rawhide whip manufactured and is the nearest in feeling to a bone whip that is

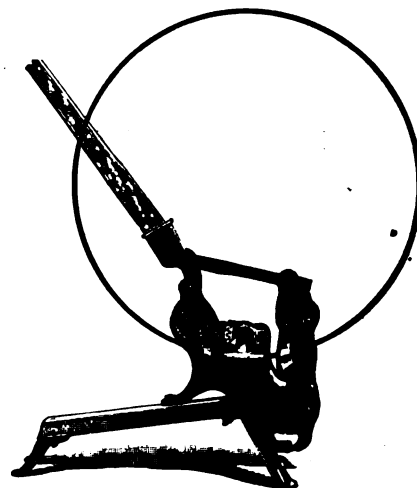
**Parlor City
Rawhide**

possible to secure in any other than a genuine whalebone whip. As all are well aware, no rawhide will keep its shape equal to a bone whip, but this comes as near probably as any can come to it. It is manufactured in 6 ft., 6 ft. 2 in. lengths.

The heavier lines of rawhides are especially popular as heavy whips, all being double covered and made especially for durability, are made up in 6, 6 ft. 2 in., 7 and 8 ft. lengths.

IDEAL TIRE UPSETTER.

WEYBURN & BRIGGS Co., of Rockford, Ill., manufacture a tire up-setter that can be operated by one man, and with which the workman can upset tire of every size, whether for a light road wagon or a heavy truck. It will not kink the tire, and one movement of the lever does



IDEAL TIRE UPSETTER.

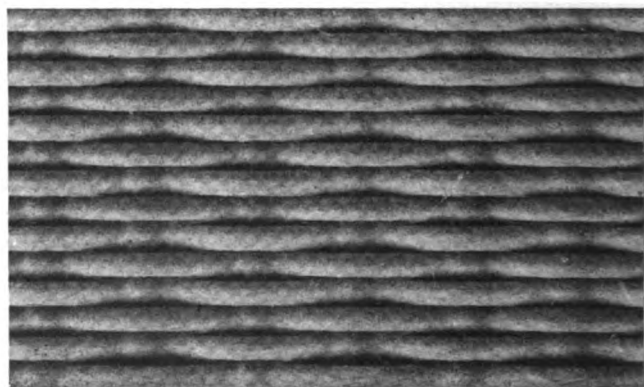
the work. No smithshop outfit is complete without it. The man who runs one fire on repairs needs it as much as the plant where a score or more of fires are seen. The manufacturers will be pleased to send circular and prices. Write them.

IN THEIR NEW PLANT.

THE Timken Roller Bearing Axle Co., who have moved from St. Louis to Canton, O., have their plant completed and in full operation. It is equipped throughout with the most modern machinery obtainable. Scientific instruments are used in preparing their case hardened rollers, cups and cones. The case hardening of the parts is a most important feature of the success of any antifriction bearing and with the facilities the above company have they do it perfectly. The demand for antifriction bearings is increasing rapidly. The Timken is one of the best and with their new factory they hope to be able to fill all orders promptly.

IMITATION BASKET WORK.

THE Bothner Hardwood Molding Company, manufacturers of hardwood moldings, are paying special attention to the production of imitation cane work for carriages and automobiles. Among their latest products is a line of heavy work for automobiles. The carving



IMITATION BASKET WORK.

is in cherry, oak, ash, maple and mahogany. Great care is taken in the production of this line of work, the patterns being up-to-date, and the work smooth. There is no question as to the advisability of getting good work, and there is none better than that made by this company. Write them for further information.

TO HARDEN STEEL WITH SEALING WAX.

To harden by this method, have at hand a large stick of sealing wax; heat the object to a cherry red heat, thrust into the wax for a moment, withdraw it and insert in another part of the wax. Continue this until the steel is cold and will not enter the wax.

HODGES VEHICLE CO.

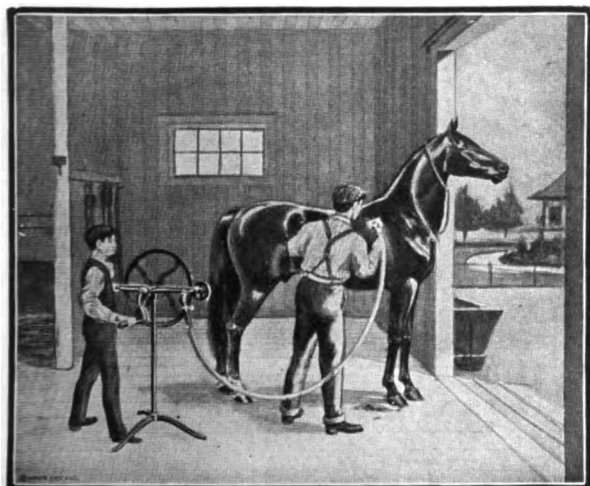
THE Hodges Vehicle Company of Pontiac, Mich., manufacturers of the "Crown" vehicles, have issued their catalogue for 1902. This company confine their product mainly to pneumatic vehicles of fine grade, principally buggies and surreys, of which there are several styles, shown by good half tone cuts, the descriptive matter being printed on intermediate leaves deckle edged. The catalogue is an attractive one. Get a copy.

MEYER'S THREADS.

THE Meyer threads are claimed by the manufacturers, John C. Meyer & Co., Boston, Mass., to be the best in the world for hand or machine stitching. They are made expressly for carriage and harness manufacturers, and will not rot or fade, very essential features as every user knows. These threads have been on the market long enough to test their value, and are more popular to-day than they ever were before. Send for samples, which will be furnished without cost. See the company's advertisement in this month's HUB.

A PATENT HORSE CLIPPING MACHINE.

HORSE clipping machines, driven with belts, are likely to be things of the past, for a new patent cut gear clipping machine, requiring no belts and possessing many advantages over the old-fashioned machines, has been placed on the market. It is Stewart's patent, and is manufactured by the Chicago Flexible Shaft Company, 195 Ontario street, Chicago, Ill. The machine, of which we give an



HORSE CLIPPING MACHINES.

illustration, possesses the two primary requisites for a perfect hand power clipper. First, the operator knows when he turns the handle of the drive wheel that his effort is being put to useful effect, whereas in belt machines a certain percentage of power is always lost by reason of the belt slipping; and, secondly, it has a balance pressure knife, that under any and all conditions keeps an even, unvarying and equally distributed tension on the blades. Without this second feature it is impossible for a machine to work properly. The pinion shaft of the Stewart clipping machine is provided with a turned balance wheel, which, revolving at a great speed, completely equalizes the motion. The opposite end of the pinion shaft carries a quarter turn box, completely closed and dust proof (the revolving members of which run constantly in oil), to which the flexible shaft is attached. The driving gear is mounted on a tripod stand in such a manner that the whole frame, carrying wheel, etc., revolves freely, and enables the operator to follow the turn of the clipper readily. It may be mentioned that each one hundred turns of the crank handle insures twenty-eight hundred vibrations on the cutters. The price is within the reach of all horse breeders and those who keep horses.

IN THEIR NEW BUILDING.

THE Initial Toe Pad Company, of Three Rivers, Mich., are now fully settled in their new building and doing business in a much greater volume than before the disastrous fire a year ago, that totally destroyed their plant. The illustration herewith shows their new factory, which is a four story structure of brick, 120 by 48 feet, and as near fireproof as possible. The different departments are arranged throughout the building in a most advantageous manner. Long experience in vehicle and carriage top manufacture has taught the proprietors of this company, Mr. Barrows and Mr. Watson, that good facilities help to make good profits.



PLANT OF THE INITIAL TOE PAD COMPANY.

The ground floor is devoted to a wood shop, blacksmith shop and shipping room. On the second floor is located their offices, which are exceedingly pleasant and spacious, also a repository and large stock room. The third floor is used for the manufacture of carriage tops, of which this company do a very large number, marketing them both in this country and abroad. The vehicle trimming department is located upon this floor also. The fourth and top floor is occupied by the painting and finishing departments.

Excellent light on all floors, good ventilation; the elevator and all machinery is run by electricity and a splendid system of steam heating is installed. Few manufacturing plants have been arranged with more attention to the requirements than this, and its entire equipment is of the best.

CABINETS FOR WOOD AND HALF TONE CUTS.

THE extensive use of illustrations for catalogues necessitates the use of some place in which they can be stored, where they can be protected from injury, and where they are easily accessible. Such a place is provided by the cabinets manufactured by A. G. Butler of 101 Beekman street, New York City. He also manufactures



HALF TONE CUT, CABINET.

cabinets for drawings, blue prints, etc. Write him if in want of anything of the kind and he will give you all the desired information as to prices, styles, etc.

MIDGLEY TUBULAR STEEL WHEELS.

THE Midgley Manufacturing Company, of Columbus, O., who have been manufacturing a line of tubular steel wheels for automobiles, are arranging for the manufacture of light wheels for buggies.



TUBULAR STEEL WHEEL.

They have leased a new plant and hope to be ready to put the light wheels on the market by April. These wheels have proved a success for automobiles, and much is expected of them as light carriage wheels.

NON-CORROSIVE METAL.

AFTER a number of years' experimental work the Non-Corrosive Metal Company, of Boston, are producing a metal which they guarantee absolutely rustless, and which has a tensile strength equal to steel. They are introducing this metal extensively into the manufacture of pole crabs. It is a well known fact that cast or malleable pole crabs are unreliable as to strength, and when plated the plate soon wears through. Forged steel is expensive and is open to the objection of rusting. The Non-Corrosive Metal Company have carried their experiments into the line of drop forgings, and are using this process in the manufacture of their pole crabs—the process of hammering the metal gives a flawless and extremely strong product, as will be seen from the following reading of exhaustive tests made at engineering laboratories:

Dimension of cross sec.	Maximum load.	Orig. sec., sq. in.	Max. load, lbs. sq. in.
.1910 in. dia.	3530	.02865	124,950
.1910 in. dia.	3570	.02865	124,600
.1910 in. dia.	3590	.02865	125,300

The pole crabs are used and endorsed by many of the leading carriage builders in the United States and Europe, and it is acknowledged that the introduction of the metal is a great advance in the construction of this article. Carriage builders will appreciate the advantage of using pole crabs that have great strength and which cannot be rusted and require no plating. The annoyance of cleaning rusted ones is no longer necessary. The company has a well equipped foundry and factory in Boston, which they are now enlarging to meet the demand for their goods. They manufacture also all kinds of carriage mountings and a general line of hardware specialties from this metal.

WATERTOWN CARRIAGE COMPANY.

THIS company have issued a very comprehensive illustrated catalogue for 1902, containing about one hundred illustrated pages, showing the long range of light carriages built by the company. Many of the styles are specially attractive. The illustrations are all half tone and the printing is good. The list of carriages is too long to permit our naming all. We accordingly recommend all who desire to handle the Watertown lines. The company's address is Watertown, N. Y.

THE FRANTZ BODY MANUFACTURING CO.

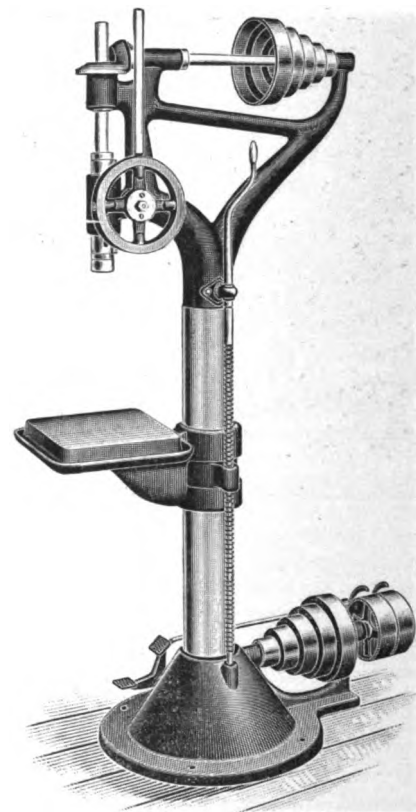
THE Frantz Body Manufacturing Co., of Akron, O., manufacturers of fine carriage and automobile bodies, have issued a hanger—a dozen styles of buggy, stanhope surrey and rockaway bodies. The styles are attractive, one of which is shown in our article on "Bodies, Gears, Springs," etc.

THE BRIGHTON.

THE Brighton Buggy Co., of Cincinnati, O., are sending out illustrated booklet No. 10, in which are illustrated and described five of their leaders for 1902, four of which are buggies and one a surrey. The buyer need make no mistake with this booklet before him, as the cut and description furnish all the desired information except the price. That can be had by writing to the company. The growth of this company from an output of 3,000 vehicles in 1896 to 16,000 in 1891 is satisfactory evidence of the merit of their product.

UPRIGHT DRILL.

THIS cut illustrates No. 7 Drill, manufactured by W. F. & John Barnes Co., Rockford, Ill. It has 15-inch swing, for light and medium work. With the combination lever and wheel feed the operator has choice of either feed; the change is made by either inserting or removing the lever. The platen can be raised or lowered by means of a screw parallel with the column and within easy reach of the operator; platen also can be swung from under the spindle to right or left. The bevel gearing is cut from the solid and is as nearly noiseless as it is possible for metal gearing to be. The bearings are long and accurately fitted. Spindle is equipped with roller bearing, which reduces friction to a minimum. The dimensions are: Height of drill, 65 inches; distance from spindle to base, 47 inches; diameter of column, 4 1/4 inches; diameter of spindle, 1 1/16 inches; travel of spindle, 7 inches; hole in spindle, No. 2 Morse taper; diameter of table, 10x12 inches; maximum distance from spindle to table, 31

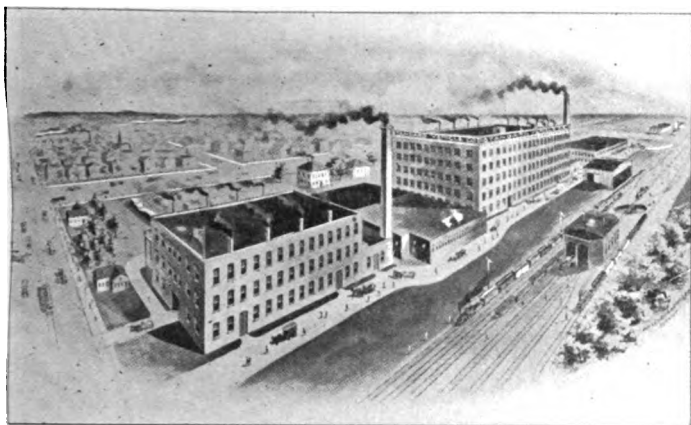


UPRIGHT DRILL.

inches; diameter of large pulley on cone, 8 inches; diameter of small pulley on cone, 2 1/2 inches; belt on cone, 1 1/2 inches; tight and loose pulley, 6x2 1/8 inches; diameter of crown gear, 3 3/4 inches; diameter of bevel pinion, 2 3/4 inches; face of tooth, 15/16 inches; required floor space, 20x31 inches; speed of tight and loose pulley, 500 revolutions; weight, 290 pounds. Write for prices and further information.

STANDARD VEHICLE COMPANY.

THE HUB takes pleasure in presenting its readers a perspective reproduction of the plant of the new Standard Vehicle Company, Pontiac, Mich., the newest buggy concern. Pontiac has become famous for the manufacture of vehicles, and no less than 100,000 jobs were pulled out last year, while this season gives promise of even a greater output, as many of the factories have increased their capacity and two entire new plants have been erected. The Standard, just completed, is one of the most unique and promising in the city; located



STANDARD VEHICLE COMPANY'S PLANT.

at the M. A. L. R. R. junction and the D. & P. electric cars, presenting a striking appearance to westbound travelers on the D. G. H. & M. and the Pontiac electric cars. The main building of the new plant is a handsome five-story, in size 80 by 140 feet, located on Osman street, with a V shaped siding on the north and south side for convenience in out-shipping of manufactured goods and in-taking of raw material. The additional buildings are also commanding. The Standard company was organized August 15th last, the building begun September 15th and completed November 15th—just sixty days. Since that time vehicles have been manufactured. The capacity of the new plant is sixty completed carriages per day. A large number of orders are already booked for the season's trade. The company is composed of some of Pontiac's foremost citizens, including as stockholders H. F. Messenger, vice president of the Oakland County Savings Bank; J. A. Hogle, county treasurer; J. B. Draper, auditor of the E. M. A.; George Brown, county clerk; F. L. Perry, cashier of the Oakland County Savings Bank; Chauncey Brace, John Kudner, Andrew L. Moore, J. A. Tillson, J. A. Linabury, S. A. Patterson, D. V. Camp. The officers are H. C. Kudner, president; H. E. Peirce, vice president; L. W. Nichols, secretary. The condition of the company is most flourishing and carload shipments have already been made to California, Minnesota, Iowa and Wisconsin. Pontiac is famous for buggy building and the city is justly proud of its new factories.

Mr. Kudner is an old newspaper man, being formerly connected with the *Detroit Free Press* and more recently publisher of the *Lapeer County Democrat*. Mr. Peirce has for many years been connected with the C. V. Taylor and the Pontiac Buggy Company plants here. Mr. Nichols has been for years the buyer for the Durant-Dort company at Flint and the Dunlap Vehicle Company and Pontiac Buggy Company of Pontiac.

The Standard has just issued some fine new catalogues.

GROTON CARRIAGE WORKS.

THE 1902 catalogue of the Groton Carriage Works, Groton, N. Y., is a most attractive one in style and variety of illustrations shown. Many of the styles of carriages are new and pleasing. The line built by the company includes buggies of various types, stanhopes, road wagons, road carts, speeders, spring wagons, etc. You need a copy.

JAP-A-LAC.

THE Glidden Varnish Company, of Cleveland, O., are sending out an illuminated hanger calendar for 1902. The central figure is a youngster holding cans of jap-a-lac. The outer border has a series of prints showing the uses to which jap-a-lac can be put.

MOVED INTO A NEW BUILDING.

THE M. A. Doucette Carriage Company, of Cincinnati, O., have moved to the large five story building formerly occupied by the Koyer Wheel Company. No better quarters could have been found, situated as it is only a block from the Grand Central Depot and being in close proximity to all railroads the shipping facilities are of the best. The building is five stories high and every floor is 50 by 176 feet and lighted from all four sides. With such capacity and shipping facilities the Doucette Company will be able to fill all orders promptly, as they will have a capacity of 15,000 jobs yearly. The line will be a most complete one, comprising buggies, surreys, road wagons, runabouts, etc. They will make a specialty of their combination top buggy and gentleman's park wagon, which is practically two vehicles for the price of one. Every dealer should have a catalogue and price list of this line.

THE KERATOL COMPANY.

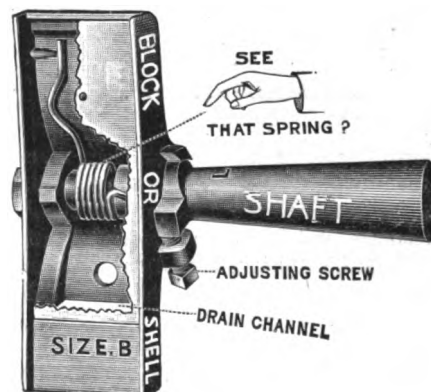
AMONG the most successful companies engaged in the manufacture of a substitute for leather, is The Keratol Company, of Newark, N. J. The extended line produced by them was shown at Central Palace and other carriage exhibits last year, and serves to explain to those who examined the goods why the company has been compelled to put up a new building each year in order to keep up with their orders. Three years and a half and three large buildings and a small one is the record. The three factories are each one hundred and fifty feet long. They are rushed with business. Everything they make sells well, but Keratol ducks and drills are their best sellers.

KEATOR & WELLS.

KEATOR & WELLS, the enterprising Cortland (N. Y.) builders, have recently made a change in their wood working and designing departments and have placed in charge Mr. W. S. Tripp, who has for a number of years had charge of these departments in leading central New York factories. Mr. Tripp is an expert draughtsman and builder of high class work and will keep their present modern business strictly up to date. They report business booming and shipments far in excess of last season. We would call attention to their advertisement in this issue.

"SPRING" BRAKE BLOCKS.

MORGAN POTTER of Fishkill-on-Hudson, N. Y., inventor and sole manufacturer of the original "spring" brake blocks, is having a large and increasing demand for this goods. The accompanying cut shows the construction of the block to which various kinds of shoes are fitted for use on steel or rubber tire. They are adapted for use on light or heavy vehicles, twelve sizes being made, covering tires from 7/8 to 5 inches wide. For use on rubber tires he makes a special wear shoe, with a perfectly smooth concaved

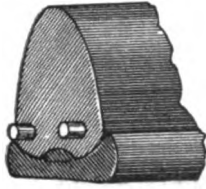


SPRING BRAKE BLOCK.

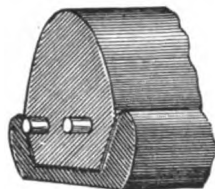
face, secured to the block with concealed bolt at the back, which insures always a perfectly smooth surface for the rubber tire. It is pronounced by expert carriage builders, from practical use, as giving entire satisfaction on both solid and pneumatic tires. Mr. Potter is a specialist in brake blocks and brake attachments, having devoted many years in this line. Catalogues for the asking and inquiries promptly answered.

INTERLOCKING RUBBER TIRE.

A NEW solid rubber tire has been put upon the market by the Southern Rubber Tire Co., of Knoxville, Tenn. The two illustrations herewith show the interlocking and the old style. It is claimed for this that it will not "jump" off the wheel, neither will it creep, and exposes more working surface than any other rubber tire. The



NEW PATTERN.



OLD PATTERN.

manufacturers will be prepared to fill orders in time for the spring trade. They would like trial orders, believing that these will result in permanent buying. Read their advertisement in this month's HUB and write to the company for further information.

WELDING COMPOUND.

THE Welding Compound Co., of Paterson, N. J., are the manufacturers of the Cherry Heat Welding Compound, a flux for welding iron and steel that has no superior. It has stood the test of nearly thirty years and has never failed the man at the forge. So extended has been its use that it has served the purpose of iron and steel workers in every line from the lightest and most difficult to the heaviest weldings. It is a time saver as well as a thoroughly reliable auxiliary,

The Best Flux known for Welding



And MALLEABLE Iron to Steel.

and no iron worker can afford to be without it. To the carriage maker no matter how small or how extended his business, it is an ever ready helper. To the repairer of vehicles it is indispensable, no matter whether the repair job be a broken spring, axle bed or minor iron. The company has established a branch factory in Hamilton, Ont., for Canadian and export trade, and an agency in Liverpool for supplying the demand from Great Britain, as it has attained a strong hold upon the metal workers of Great Britain and on the continent. The company will be pleased to furnish further information regarding their welding compounds to users or will refer you to live dealers who supply the blacksmith trade and who carry it in stock.

W. H. KEBLINGER & CO.

THIS company, located at Auburn, Ind., have issued catalogue No. 22, showing their 1902 styles of driving wagons, buggies, stanhopes and surreys. The styles shown are neat and show many new lines in designs of bodies, and in variety enough to satisfy the wants of most builders. The illustrations are all half tone and are well made. The descriptive matter is sufficient to give a good idea of the vehicle. Get a copy.

NOW WITH THE GOODYEAR TIRE AND RUBBER CO.

Mr. George M. Stadelman, who has been connected with the sales department of Morgan & Wright for the past eight years, has recently accepted the position of manager of the carriage tire department of the Goodyear Tire and Rubber Co., Akron, O. Mr. Stadelman of known as an enterprising business man and we feel sure his friends will welcome the news of his association with the Goodyear Tire and Rubber Co.

ONE HUNDRED SALESMEN.

WE are informed that, instead of the Sherwin-Williams Company, of Cleveland, O., employing one hundred in their office, factory and on the road, they have that number of salesmen. The whole number of the company's employees greatly exceeds this. We make this correction cheerfully, but the fact that any paint house employs that number selling its product rather startles our conservative nature. But the Sherwin-Williams Company say so, and their word, like their paint and varnish, is not to be questioned.

MOVED TO BRIDGEPORT.

THE SCRANTON & Co., of New Haven, manufacturers of power hammers, etc., have moved their office to the corner of Golden Hill and Water street, Bridgeport, Conn.

NEW YORK STATE AID FOR GOOD ROADS.

STATE ENGINEER BEND, of New York state, has proposed a scheme for uniting all the great cities of the state by improved highways. The scheme will call for an appropriation of \$2,000,000. If this scheme is carried out automobilizing will be a pleasure in New York state.

WHEELS AND WHEEL MATERIALS.

F. SEIDLE of Mechanicsburg, Pa., manufacturer of wheels and wheel materials, as well as woods for carriage parts, has been engaged in the business for forty-five years. He confines his product to first class goods and has an extended home trade. He also ships to all the leading consumers of Europe. His plant is a large one and is fitted with the most approved and up-to-date machinery. Give him a call.

TO CEMENT METAL AND GLASS.

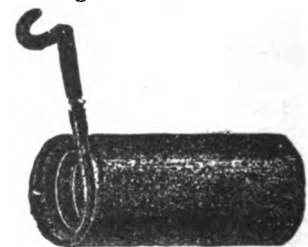
THOROUGHLY mix 50 parts by weight, of dry white lead and 100 parts pulverized white litharge, and work it to a plastic condition with 1 part copal lacquer and 3 parts boiled linseed oil. Coat the surface of the metal letters with the cement, press upon the glass and remove the surplus cement with a table knife or some other means. The cement dries rapidly and becomes extremely hard.

FOUR CARRIAGES IN ONE.

THAT is what C. H. Stratton & Co., of Muncie, Ind., furnishes to the buyer of Strattons patent New Century. It may be a "runabout," a trap, a surrey, or a rockaway, whichever you will it, by simply making changes on the body; changes that require but little time and which completely change the appearance of the vehicle. The demand for this carriage is such that trouble has been experienced in filling orders, the orders coming from various parts of our country and from abroad. The company now turn out finished vehicles, also vehicles in the white. A letter to the company will bring you full information regarding the combination vehicle.

BUGGY-PROP SPRINGS AND LEVERS.

CATELY & ETTLING, of Cortland, N. Y., don't want carriage manufacturers to overlook them when placing orders for goods for the spring trade. Mrs. Ettling has two reasons for this reminder. In



PRJP SPRING.

the first place, the springs and levers that her company manufactures enhances the value of a carriage and aids the dealer in selling. Then, too, last year's trade was most encouraging and she is hopeful that the trade for 1902 will be equally profitable.

FINISHED CARRIAGE EXHIBITION.

We are informed that the management of the Grand Central Palace, in New York City, has been requested by a number of the representative exhibitors at the recent carriage exposition to conduct the ninth annual exposition at the Grand Central Palace in October next. All the exhibition charges and costs will be reduced to a minimum and everything that money, experience and earnest endeavor can do to promote the interest of exhibitors will be done. The same men who have been conspicuously successful in trade shows of other industries at the Grand Central Palace, will be in charge of this exhibition. Complete details of the plans for the exhibition will be forthcoming in a short time.

DEADWOOD COACH TO MUSEUM.

Col. William F. Cody, who is in Washington in connection with the campaign in furtherance of legislation for irrigation of the arid lands of the West, said that he would probably present the famous Deadwood coach to the National Museum.

The National Museum has no stage coach of the type used in the West years ago. There is an old prairie schooner, but no stage coach. The old Deadwood coach figured in many thrilling affairs in the West, and, Mr. Cody says, every crowned head of Europe has ridden within or upon it.

The Deadwood coach is one of the old Concord type and was built in 1863 by Abbott, Downing & Co., of Concord, N. H.

Obituary.

B. F. PARTRIDGE.

B. F. Partridge, of Fergus Falls, Minn., who has for years been one of the most prominent citizens there, died on January 2d from apoplexy, aged 60 years. He organized the Fergus Wagon Company fifteen years ago and has carried on a successful manufacturing business ever since. He was at one time a member of the St. Louis Board of Trade.

EDWARD CHOPE.

Edward Chope, the veteran wagon maker and one of the most prominent characters in Detroit's earlier business activity, died of old age on December 25th at his home, 1503 Grand River avenue. Mr. Chope was born in Devonshire, England, in 1815. He came to this country in 1825 and two years later settled in Detroit. He engaged in the blacksmithing and wagon business when he came here and the business has continued ever since by his sons, although he retired from active participation in 1883. He was a member of the old Brady Guards, one of the first military organizations of the city, and was a member of the first volunteer fire department of the city. He never held public office, although he was offered the position of the first Boulevard commissioner of the city.

HENRY C. SEABROOKE.

Henry C. Seabrooke, the president of the Seabrooke & Smith Carriage Company of No. 128 Park street, New Haven, Conn., was found dead in his bed at his residence, No. 78 Edgewood avenue, New Haven, Thursday morning, December 26th. Mr. Seabrooke, who was 72 years of age, came to New Haven from Nova Scotia about forty years ago and for several years followed his trade as a carriage maker. In 1868 he formed partnership with Lyman T. Smith under the firm name of Seabrooke & Smith. This partnership was formed shortly after the dissolution of business interest with Charles F. Dibble. The firm of Seabrooke & Smith was continued up to seven years ago, when a stock company was formed and the name changed to that of the Seabrooke & Smith Carriage Company. His concern, of which Mr. Seabrooke was one of the principal stockholders, still conducts the carriage business at 128 Park street, New Haven. Deceased was a member of Hiram Lodge, No. 1, A. F. and A. M., and also belonged to the Independent Order of Red Men.

W. W. WELLS.

William W. Wells, treasurer of the D. M. Sechler Carriage Co., of Moline, Ill., died at Moline on December 22nd, 1901. Mr. Wells was born at Greenfield, Pa., on March 2nd, 1842.

Trade News.

BY UNCLE SAM.

COLORADO.

PUEBLO—The Steel Wheel and Wagon Company of this city are erecting large buildings and hope to be in full running order by spring. They will manufacture a steel wagon, invented by W. H. Scofield, president of the company.

CONNECTICUT.

HARTFORD—The partnership of Walter G. Saunders and John F. MacNeil, engaged in a general carriage business, has been dissolved.

NEW HAVEN—Albert W. Adams, silent partner in the firm of J. F. Goodrich & Co., carriage makers of New Haven, who has been taking care of the New York end of the business, where the salesrooms are located, suffered a traumatic amputation of his left leg, it being cut off just below the knee in the accident which occurred in the New York Central Railroad tunnel. Mr. Adams was seriously injured, but it is believed he will ultimately recover.

INDIANA.

HARDINSBURG—Articles of incorporation were filed with the Secretary of State by the Hardinsburg Milling, Lumber & Spoke Company of Washington county; capital, \$6,000.

PAOLI—Staut & Pritchett will open a repository in Terre Haute and have leased the front rooms of the building at the corner of Tenth and Wabash avenue, formerly occupied by the Herman Carriage Factory.

IOWA.

HARVEY—Foshier Bros., of Maryville, have moved their large stock of hardware, implements, vehicles, furniture, etc., to this city and now occupy the double brick front built for them. They have disposed of all their property holdings at Maryville and will bring everything from their big store to this city. The coming of this big enterprise to this city means a great deal for Harvey. Last season the Foshiers did over \$200,000 worth of business, ranking well with any store in a small town in the State of Iowa.

WATERLOO—Articles of incorporation have been filed by the Waterloo Carriage Co. The corporation is formed for the purpose of manufacturing buggies, carriages, surreys and other vehicles and such other articles as may be desired by the directors. The authorized capital stock is \$100,000, divided into shares of \$100 each. The concern may start business when \$5,000 is paid in, but the paid up stock shall be increased to not less than \$50,000 by June 1, 1902. The corporation begins business January 10. The officers are: President, H. W. Greutzmacher; secretary, D. J. Wilson; treasurer, P. L. A. Ferguson. These three officers constitute the board of directors. A warranty deed was executed by the Waterloo Improvement Co., transferring the proposed site for the new carriage factory to D. J. Wilson and P. L. A. Ferguson, the projectors. The deed, however, stipulates that the grantees agree to build and maintain a brick or stone carriage factory, to be completed June 1, 1902. The building is to have 28,000 feet of floor space exclusive of the basement and for five years after July 1, 1902, the company must employ an average of fifty workmen and have invested in the business \$50,000. In case of a panic the time may be extended one year. The grantees further effect the fire insurance. In the instance of the company failing to comply with its contract and with the specifications of the deed, all property under \$9,000 value shall revert to the Waterloo Development Co.

ILLINOIS.

BELLEVILLE—The Heinzelmann carriage works on North Jackson street is to be greatly enlarged by the erection of a two-story brick building as an addition to the plant. The contemplated improvements will cost about \$4,000.

CHICAGO—H. McFarland & Co., at 100 West Harrison street, will erect an addition to their wagon factory to cost \$10,000.

KEWANEE—A petition of involuntary bankruptcy has been filed against D. F. Fuerst, owner of one of the largest farm implement and carriage houses in this part of the state. The establishment has been closed pending a hearing. Chicago creditors filed the petition.

MOLINE—Local capital has invested heavily in a new buggy company in which W. L. Velie, former secretary of Deere & Co., is the leading mover, and in which W. E. McCrea, former vice-president of the Moline Wagon Co., will be one of the active managers and heavy stockholders. C. H. Deere and other capitalists of the city are also heavily interested in the new company, which has been incorporated as the Velie Carriage Co., Moline. Capital stock, \$125,000. Incorporators, John W. Good, Willard L. Velie and Peter C. Simon. The capacity of the plant is designed to be 15,000 complete vehicles in a year, and to accommodate that amount of manufacturing an immense plant must be erected and a heavy capital invested at the very outset. The company will start, it is said, with the most admirable facilities for building up a heavy business and readily acquire the reputation of

the largest plant in the State. It is said that the product will at once be handled exclusively by all the branch houses of Deere & Co. throughout the country, thereby insuring a market for its goods.

KANSAS.

SALINA—Louis Ault has moved his wagon shops to his new building on South Fifth street.

TOPEKA—The wagon and carriage manufactory of E. G. Kinley will be enlarged and a display and store room on Fifth street will be connected with the factory. The two-story brick building at 115 West Fifth street, occupied by Arthur Massey's blacksmith shop, will be refinished on the inside and will be connected with the Kinley factory, the rear of which faces on 424 and 426 Jackson street. The Fifth street building will be used as a display room on the first floor and a storage room on the second floor. A one-story building 60 feet long will be built on the lot at 117 West Fifth street for Massey's shop.

KENTUCKY.

LOUISVILLE—Attorney A. M. Barret, assignee of the Rubel Bros.' Carriage Co., states that the firm's assets were \$7,000, while it is thought that the liabilities will not exceed \$4,500. He stated that the assignment was made at this time in order to prevent the firm's assets from being sacrificed.

MAINE.

AUBURN—Mr. S. A. Miller has sold his carriage shop on Turner street, to Mr. F. W. Adams, of Auburn.

BANGOR—Ralph Watts, of Roque Bluffs, who has been employed in G. W. Fisher's carriage shop on Centre street, for some time, has rented the Tribou shop on Centre street, where he has opened for business. He will do carriage repairing and general job work.

MASSACHUSETTS.

BALDWINVILLE—W. A. Ball, of Athol, has leased the Bishop blacksmith shop here, and will use it as a carriage and sleigh paint shop.

CRAWLEY FALLS—Fire which broke out in the manufactory of Robert Rowe's Sons about 9 o'clock Monday evening, December 16th, 1901, destroyed the buildings connected with that plant.

PALMER—F. D. Thompson has about completed the two-story addition to his blacksmith shop on South Main street, the lower floor of which he will use for wagon building and repairing. The upper floor will be occupied as a carriage paint shop by William Davis.

MICHIGAN.

BRONSON—A. J. Foster's carriage factory was destroyed by fire on January 10th; loss, \$500.

KALAMAZOO—The factory of the Michigan Buggy Co. was burned on January 16th. Loss, \$200,000. Insurance, \$84,400. The 300 men who were employed by the company are temporarily thrown out of employment.

SAGINAW—Articles of association of the Moffett Vehicle Bearing Co., which will manufacture Moffett anti-friction roller bearings in Saginaw, have been filed with the secretary of state. The capital is \$500,000, of which \$125,000 is preferred stock. A. P. Bliss and Willis G. Van Auken are the principal incorporators, other shareholders being Charles L. Benjamin, Charles F. Mershon and Herman J. Lecks.

TRAVERSE—A new paint and carriage shop is now located in the city in the Anderson Building, on the corner of Boardman avenue and Eighth street. The shop is owned by Charles G. Strong, who has had considerable experience in this line of work. Mr. Strong moved to this city recently and will make this place his home in the future.

MISSOURI.

ST. LOUIS—In order to keep pace with the increasing business and stay in line with several other North St. Louis buggy companies, which are making extensive improvements, the Joseph W. Moon Buggy Co., Main and Douglas streets, has commenced a large five-story addition to its plant. The present capacity of the manufactory is greatly overtaxed, but will be largely increased by the new structure. Joseph W. Moon was formerly connected with Moon Bros.' Carriage Co., being president of that concern for ten years.

NEW YORK.

BINGHAMTON—The firm of I. S. Matthews & Sons are rebuilding the block at Nos. 132-134 State street, formerly occupied by Charles H. Niven & Son. It is planned to raise the building to six stories, inserting a framework of iron to support the structure. The front will be double, both blocks being opened into one for the use of the Messrs. Matthews. The front of the first two stories will be of plate glass for the better display of the carriages, farm implements and wagons handled by the firm. The other four floors will have large plate glass windows, making the front very attractive. The entire six stories will be used by the company for its carriage and wagon repository.

The building, corner Hawley and State streets, formerly occupied by W. H. Voorheis, has been taken by F. B. Riker, woodworker and blacksmith; P. C. Walster, carriage painter, and

N. H. Snow, trimmer. The repository will be used jointly by all, but each runs a separate part of the business. Mr. Snow will make a specialty of dashes and tops for trade.

The I. S. Matthews & Sons will occupy the new building about April 1. The building now in course of construction adjoins their present quarters at 130 State street and when completed will make a fine home for their growing trade in carriages, harness, agricultural implements and seeds. The new building will be six stories and basement, running through to Commercial avenue. The floor space of each floor will be 40 by 66 feet. An electric elevator will connect all floors. The first and second floor will be used for display, with large plate glass windows. The entire front will be of pearl gray pressed brick, with cut stone trimmings. THE HUB will give further information at time of opening.

BUFFALO—George Werner & Sons succeeded George Werner in the carriage business at 1133 Main street on November 1, last, when Mr. Werner took into partnership with him his sons, George W. Werner and Carl C. Werner. The firm has the largest fancy carriage and high grade vehicle store between New York and Chicago. Werner & Sons deal in high class pleasure vehicles only. They do not handle low grade carriages nor wagons. Mr. Werner has been in the carriage business in Buffalo since 1863 and is one of the best known business men in the city. Their present repository is becoming too small for their business, so they intend to increase their facilities in the near future.

DEPOSIT—Smith & Reynolds on January 1 bought out the shop of W. E. Reynolds. Mr. Willis Smith and Charles Reynolds are both from Summit, N. J.

DELHI—The real estate and tools of the Crawford wagon works, located at Delhi, were recently purchased by the Binghamton Trust Co. at a foreclosure sale, for \$17,550. The Trust Co. held mortgages on the works for \$33,000. The works were immediately resold by the Trust Co. to John B. Murray, of Delhi, who will continue the business.

EDDYVILLE—Jacob Bruner has started a wagon shop and will do all kinds of wood work.

FREWSBURG—The spoke and handle factory, the principal industry of the village, was destroyed by fire on January 3; loss about \$25,000.

GENEVA—The Wagon Works Co. has just completed a large order for wagons which will be shipped to Port Elizabeth, South Africa. The Geneva Wagon Co. declared a cash dividend of 6 per cent.

HANCOCK—John Kline & Co. are busy filling orders for their buckboard wagons. They make a one and two seat, and one seat with top, combining strength with style.

HORNELLSVILLE—The Whitney Wagon Co., that expect to locate in Hornellsville, claim that they will have 200 men working in their factory at the end of the first year.

LOWVILLE—Klett & Co., a firm composed of Philip and Rosa Klett, carriage makers, have filed a petition in bankruptcy.

MENTZ—F. H. Stone, formerly of Utica, has opened a carriage and painting shop here.

NEW YORK—The International Wheel, Tire & Rubber Manufacturing Co., which has been incorporated under the laws of New Jersey, with a capital of \$3,000,000, will manufacture rubber carriage tires, bicycle wheels and all kinds of vehicles under a new patent known as the "Common Sense" tire. The company's plant will probably be located in New Jersey. The new tire to be manufactured is said to be a great improvement on the pneumatic tire, both as to the cost of manufacture and the benefits which will result to the purchaser.

ROCHESTER—An addition to the Cunningham Carriage Co.'s factory on Canal street will cost \$10,000. The company give employment to about 600 men the year round.

SIDNEY—The Phelps Carriage Co. have added a buckboard, one and two seats, to their line, and its points should find ready buyers.

SYRACUSE—Harvey A. Moyer, one of the largest carriage manufacturers in the State, made the following statement to a local reporter: "This has been a big year for the carriage men. During the year we have enlarged our plant 25 per cent. and are now employing 300 men, the largest number in the history of our business. We are taking on new men all the time and the coming year promises even better results than the year just ending. It is by far the most successful year we ever had. We are now taking care of more orders than we ever had booked at any one given time."

SPRINGVILLE—The carriage shop of Frank Weismantle was damaged by fire on January 8th, the fire originating in the room used for japanning. The principal damage was from water, as the whole building was deluged with it. Loss covered by insurance.

TROY—Davis & Vannier, of Fair Haven, have opened a carriage repository here.

UTICA—George E. Davis, a harness, wagon and trunk dealer, of this city, filed a petition in bankruptcy January 6th. The total nominal liabilities are \$53,262, and assets, \$48,826. Among the creditors are a large number of leather and horse goods dealers in various parts of the country.

WALTON—The Walton Carriage Works, Smith & Brant, proprietors, have bought the shop of the late Fred Eells, and will make all grades as well as repairing. Both have been in the trade for forty years.

NEW JERSEY.

NEWARK—In his application for the appointment of a receiver for the C. N. Lockwood Co., incorporated, lamp manufacturers, President Ingram placed the liabilities of the concern at \$16,500, and the company, the papers say, is without means of paying its employees, the workmen having been obliged to go without their wages for the week before Christmas. A suit for \$7,500 damages against the company is pending in the Circuit Court, the complainant being Henry Baxter, who claims to have received injuries while in the company's employ. The company is further liable to the extent of \$6,800 in negotiable paper which is shortly to mature. It is held by the Essex County National Bank. Mr. Ingraham estimates the assets as follows: Book accounts, of uncertain value, \$4,700; tools, machinery and factory equipment, \$6,500; general merchandise and stock, \$4,000. The present company was incorporated in May, 1897, to take over the business of the then existing firm of C. N. Lockwood & Co., and business was commenced with a capital stock of \$18,000. This was subscribed for as follows: Jane A. Ingraham, forty shares; John A. Howell, 160; Charles L. Ingraham, 160. Besides Mr. Ingraham, the officers of the company are Charles P. Eberhard, vice-president, and Hilmar L. Seidler, secretary and treasurer.

NEW BRUNSWICK—Articles of incorporation have been filed here for the International Wheel, Fire and Rubber Manufacturing Co. The company will manufacture rubber carriage tire, bicycle wheels and tires, and all kinds of vehicles. The capital stock is \$3,000,000, divided into 30,000 shares of \$100 each. The company has \$1,000 in stock paid in as follows: William T. Ellis, Springfield, Mass., \$200; Henry L. Prentice, New York, \$200; William Sandford, this city, \$200; H. B. Shofield, Denver, Col., \$200; F. D. Palmer, Poughkeepsie, N. Y., \$200.

NORTH CAROLINA.

SCOTLAND—Fire destroyed the shops of the Carolina Buggy Co. on January 11. Mr. J. E. Worland, proprietor of the Carolina Buggy Co., lost \$1,800 or \$2,000, with only \$900 insurance.

OREGON.

PORTLAND—Preliminary work has been begun in Portland on a warehouse and salesroom for Studebaker Bros., wagon and carriage manufacturers. The building will be a four-story structure, and will be located on the Oregon Railway & Navigation Co.'s line. It will be one of the largest and most elaborate buildings of the sort on the Pacific Coast. The front will have an attractive finish, with large plate glass windows. For the office in the front part a space about 50 x 60 feet has been reserved, which will be handsomely ceiled and finished. At the entrances in the front of the building there will be recesses which will be floored with tiling. There will be a large elevator for lifting vehicles to the upper floors, and also a stairway.

OHIO.

ALLIANCE—A. D. Wallace, the carriage manufacturer, will erect a two-story frame building. The work of tearing down the old brick structure will be commenced at once. The new building will be 80 x 32 feet. J. M. Smith, who now occupies the building, will remove his blacksmith shop to the old Coates blacksmith shop, near the rear of the new Crist building.

CINCINNATI—The Cincinnati Varnish Co. has been incorporated with \$100,000 capital stock by John C. Moore, H. F. Koenig, E. A. Glasscock, H. C. Shroder and Wm. L. Moore. This company is located at 218 East Court street, and was formerly the partnership firm of J. C. Moore & Co., and doing business under the firm name of the Cincinnati Varnish Co. The company was incorporated to put the business on a better basis.

Sechler & Co. is a West Virginia corporation. It filed its West Virginia incorporation papers at Columbus Saturday, and was qualified to do business in Ohio, with headquarters at Cincinnati, and Caleb W. Shipley as Cincinnati agent. The capital stock is \$250,000. They will make vehicles and employ \$50,000 of their capital in Ohio.

MECHANICSBURG—The William Culbertson Carriage Co., one of the oldest and best known carriage factories in this part of the country, has been sold to J. C. Culbertson, Jr., who will associate himself with his brother, William Culbertson, Jr., and continue the business under the firm name of Culbertson Bros.

MIDDLETOWN—The Decatur Buggy Co. has been incorporated, with \$50,000 capital stock.

MARIETTA—William Reader, president of the Ohio Valley Wagon Co., has sold his entire interest in the company to Mr. A. I. Ahlborn. The consideration is private, but it is said that Mr. Reader held a good share of the stock. Mr. Ahlborn was also a stockholder in the company before he purchased Mr. Reader's share.

MIAMISBURG—The newly elected board of directors of the Kauffman Buggy Co. has organized as follows: President, Jacob Kauffman; vice-president, Ellwood Allen; secretary and treasurer, James A. Kauffman.

NEWTON FALLS—F. A. Smallsreed & Co. have purchased the stock of vehicles which Mr. Smallsreed sold to S. W. Sigler, and will continue the business at the old stand. Mr. Smallsreed's

entire time is employed as superintendent of the Coshocton Vehicle Co., and Ward Smallsreed will be salesman.

UPPER SANDUSKY—The Central Ohio Buggy Co., of this city, has been incorporated under the laws of West Virginia, with a capital stock of \$100,000. The incorporators are J. J. Schupp and F. N. Smith, of this place; A. L. Zook, of Orville, O., and Lorles Wilmouth, of Forest, O.

NEW BREMEN—A. H. May, dealer in farm machinery and vehicles at New Bremen and Kettleville, has been superseded by a new firm to be known as the A. H. May Implement Co. The new company has a capital stock of \$25,000 and is composed of the following business men of New Bremen: A. H. May, E. C. Quellhorst, Julius Boesel, Henry Roettger and A. C. Buss, with A. H. May as president and manager. The company has applied for articles of incorporation.

YOUNGSTOWN—The stockholders of the Youngstown Carriage and Wagon Co. met on January 13 in the office of the company and elected directors for the ensuing year as follows: John C. Wick, L. E. Cochran, John Tod, W. J. Hitchcock, A. H. Rice, D. E. Webster and W. P. Williamson. After the meeting of the stockholders the newly elected directors met and elected the following officers: President, John C. Wick; vice-president, W. J. Hitchcock; secretary, D. A. Webster; general manager and treasurer, W. P. Williamson.

PENNSYLVANIA.

ATLANTIC—George F. Chany, carriage and implement dealer, of Sheakleyville, has bought a half interest in the firm of McDowell & Son, of Atlantic, Pa., and he and P. A. McDowell will now continue the same business at Atlantic.

EDINBORO—Among those who suffered from the large fire on the 15th of January was G. B. Hanson, carriage and harness dealer.

GETTYSBURG—Harry Troxell, carriage manufacturer and repairer, is putting up a shop on the rear of his residence, 16 x 40.

KUTZTOWN—R. Miller's Son, who recently enlarged his carriage factory, finds that the ever increasing business still demands a better equipment. He intends to introduce steam power to run the machinery.

NEWTOWN—Fire, apparently of incendiary origin, caused a loss of \$1,200 in the carriage and wagon factory of H. W. & W. M. Watson, at this place, December 30th.

READING—George H. Smith & Son, carriage manufacturers, have been busy for some time and are doing a big trade. The firm is giving special attention to high grade work.

WILKESBARRE—The Spring Shop, or annex, of the Sheldon Axle Works opened on January 6th, giving employment to 150 men and boys. A part of this mill was started some time ago, but the officials decided to go slow, as it was surmised for awhile that the material would not find a ready market. It proved otherwise, however, as the orders from the very commencement exceed the output. The other department was not ready for occupancy and extra men were employed to get it in readiness. When the machinery was placed in position it was decided by the officials to hire 150 men and boys. When the fact became known it did not take long to get that number, and it was decided to commence operations. W. H. Son, the manager, is a hustler, and under his supervision things are sure to move smoothly. The Sheldon Axle Works have developed wonderfully during the past two years.

RHODE ISLAND.

NARRAGANSETT—A two-story addition is being built to the carriage shop of William Sleeman.

TENNESSEE.

CLARKSVILLE—The firm of Bradley, Gill & Baker, conducting a general carriage business, has been dissolved by mutual consent, C. L. Bradley retiring. The business will be continued at the same place by the remaining members of the firm, under the name of Gill & Baker.

NASHVILLE—George Leslie's carriage business will be closed out since the death of Mr. Leslie.

UNION CITY—The assignee stock of buggies, harness, etc., of H. A. Reaves, who made an assignment for the benefit of his creditors several weeks ago, has been sold to J. F. Carter, who will continue the business at the old stand.

TEXAS.

AUSTIN—Mr. J. C. Messer is now the manager of the Capital Carriage Co., located at 712 East Sixth street. This company is prepared to do all kinds of carriage building, general repairing, blacksmithing, etc. Mr. Messer was formerly with the Monroe Miller Eclipse Stables and is a thoroughly competent and skilled mechanic, and all work entrusted to this firm will be guaranteed to give entire satisfaction. Mr. C. B. Beard, of the Capital Wood and Coal Co., is proprietor.

UTAH.

SALT LAKE CITY—News was received in this city yesterday from Utah of the merger of the Co-operative Wagon & Machine Co. and the Consolidated Implement Co., of Salt Lake City. The new concern will be known as the Consolidated Wagon & Machine Co., and has a capital of \$1,500,000. For the first five years the official roster will be: Joseph F. Smith, president; W. S. McCormick, vice-president; M. D. Wells, secretary; Frank R. Snow,

treasurer; George T. Odell, general manager. It is said that the control of the new company is in the hands of the leaders of the Mormon Church and prominent local bankers. The business of the Consolidated Company covers all of Utah and Idaho in the handling of wagons, carriages and all kinds of agricultural machinery. It is asserted that before the consolidation was assured the consent of all the Eastern manufacturers whose goods the old companies handled was obtained.

VIRGINIA.

RICHMOND—Judge Mullen, of the Hustings Court, has granted a charter to the "Petersburg Rim and Veneer Company," with a capital stock of \$50,000, divided into shares of \$100 each. The purposes of the company are to manufacture and sell rims, veneer headings, spokes, hubs, wheels, wagons, etc. The officers for the first year are: President, Simon Seward; first vice president, W. E. Dillard, second vice president, Denney Perkinson; secretary and treasurer, R. E. Brunet. The company has built a large plant in the western portion of the city, put in the best machinery, and is prepared to do a great deal of work in its line.

VERMONT.

MONTPELIER—O. R. Collins has sold his carriage business to Harry Hawkins, who took possession Saturday. Mr. Collins may go to Southern California.

WISCONSIN.

DOWNING—The Downing Wagon Co. has been organized here, with a capital of \$15,000. The company has purchased the patent rights of J. H. Gresom to a new and improved fifth wheel for wagons. This improvement does away with the necessity for front hounds and with the king bolt. The wagon has been severely tested and proven successful. It is the intention of the company to establish a large factory here in the near future.

RACINE—The Mitchell & Lewis Wagon Co. proposes to rearrange its entire plant and to construct a new shop and warehouse of large dimensions at the cost of \$100,000 or more on the property which it owns south of its present buildings. While the company at present employs about 500 men and pays in wages in the neighborhood of \$300,000 per year, it was compelled during the year just closed to pass up some 2,000 orders for the reasons referred to. The proposed enlargement will enable the company to increase their output from 33 1-3 to 50 per cent.

The Racine Wagon & Carriage Co. has let contracts for the construction of a new spring factory, to be built adjacent to their buildings on Sixteenth street. The dimensions of the new factory are to be 180 x 60 feet and is to cost about \$40,000. When the new building is completed, employment will be given to about fifty additional men, giving the entire factory a working force of over 800 employees, which will make the Racine Wagon & Carriage Co. one of the largest manufacturing concerns of its kind in the world.

Wants.

Help and situation wanted advertisements, one cent a word; all other advertisements in this department, 5 cents a word. Initials and figures count as words. Minimum price, 30 cents for each advertisement.

SITUATIONS WANTED.

Situation wanted as trimmer foreman by a capable and up-to-date hustler. Best reference as to character and ability. "W. H.," 743 West Sixth street, Cincinnati, O.

Wanted—A position as body finisher in a first class shop; also stripper and all around painter. Would be willing to take charge. Have had considerable experience in fine custom repair work. In last job eleven years. Can furnish best reference. Address "W. G. A.," Box A 98, care THE HUB.

Wanted—Position by a practical carriage painter as foreman, or will contract. Eighteen years' experience, age thirty-two. Address "PAINTER," Box A 91, care THE HUB.

Wanted—A situation by competent foreman painter. Automobile or carriage shop. Strictly temperate and of good executive ability. Address "WM. K.," Box A 95 care THE HUB.

Wanted—A situation as superintendent or assistant by first-class all around carriage man and practical draftsman. Address Box "A 82," care THE HUB.

A retired carriage maker, good address, steady habits, active, inventive and intelligent—can speak German—will accept position as salesman, or handy all-around man, or manager in some good moderate sized carriage factory. Best reference furnished. Would invest a little. Address "HANDY MAN," Box A 80, care THE HUB.

An experienced and successful carriage salesman, who has a wide acquaintance among Eastern dealers, and who has just severed his connection with a prominent New York State manufacturer, would like to communicate with a wholesale carriage builder who wishes to extend trade in the Eastern territory. Best references. Write at once to "EXPERIENCED," Box A 81, care THE HUB.

Manufacturers of carriages, wagons, harness, or the accessory lines, who are in need of salesmen, and who want to engage high class men able to sell goods, should write at once to L. H. Kronfeld,

secretary of the Carriage, Harness and Accessory Traveling Salesmen's Association, Mt. Vernon, N. Y.

HELP WANTED.

Wanted—A good designer for automobile carriage bodies. Apply to "A. Co.," P. O. Box 52, New York.

Wanted—Competent carriage painter to take charge of shop on contract for labor. Stock found. Address "V.," Box A 97, care THE HUB.

Wanted—Two good body makers at once. Must be good on phaeton and piano bodies. Steady work. Apply to FOUTS & HUNTER CARRIAGE MFG. CO., Terre Haute, Ind.

Wanted—Two first class blacksmiths. Steady employment to the right parties. Wages \$3.00 to \$3.50 per day. Apply to A. MEISTER & SONS' CO., Sacramento, Cal., stating experience, etc.

Wanted—Superintendent for large carriage and automobile body factory turning out high grade work. Good references required, and applicant must be thoroughly practical and good systematizer. Address "F. CO.," Box 96, care THE HUB.

Wanted—Experienced foreman for paint department of buggy factory, capacity eight to ten thousand jobs. Man thirty to forty years preferred. Must be thoroughly familiar with painting, and capable of handling men. References required. Address "R. F.," Box A 88, care THE HUB.

Wanted—An experienced body finisher. Address "R. F.," Box A 89, care THE HUB.

Wanted—Hustlers to secure new subscribers for THE HUB. A good chance to make money easily. Subscription price, \$2.00 a year. Liberal commission paid. Address Subscription Department, THE HUB, 24-26 Murray street, New York.

PATENTS.

PATENTS—H. W. T. Jenner, patent attorney and mechanical expert, 607 F street, Washington, D. C. Established 1883. I make an examination free of charge, and report if a patent can be had and exactly how much it will cost. Send for circular.

FOR SALE.

Egan wheel boxing machine in first class condition. Address Rattermann & Luth, Cincinnati, O.

A good second-hand Elliott dash stitching machine in good running order; will stitch new as well as old dashes, sleigh wings and fenders. Address "J. C. M.," Box A 99, care THE HUB.

For sale at a bargain, a first class carriage factory up to date in every respect. Controls the leading trade in a city of 50,000 inhabitants. Can furnish the very best of reference. Will sell with or without building. Reason for selling, other business requires attention out of the city. Address "G. A.," Box A 92, care THE HUB.

Solid rubber tire patent. Entirely new principle. Cannot get off the rim. Economical. Experienced tire men say it is the best they have ever seen. For particulars address "RUBBER TIRE," care of THE HUB.

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Carriage factory, fine location, good trade. Only one other shop in the city of 40,000 inhabitants. Rent reasonable. Address Irvin Tennant, Springfield, O.

BUSINESS OPPORTUNITIES.

Wanted—a reliable party to promote or manufacture the most valuable anti-friction bearing of the age, that will revolutionize the automobile and vehicle industry and do three times more than any bearing in existence to-day. There are millions in this invention that will bear the strictest investigation. Can be seen in operation at 1233 Lexington avenue, New York. Sweeney.

EXPIRED PATENTS.

THE following list of patents, trade-marks and designs of interest to our patrons are furnished by Davis & Davis, solicitors of American and foreign patents, Washington, D. C., and St. Paul Building, New York City. A copy of any of these may be had for 10 cents by sending to the above firm.

PATENTS EXPIRED DEC. 16, 1901.

309,217—Vehicle Brake—C. W. Fox and W. A. Wenmoth, Morris, N. Y.

309,268—Two Wheeled Vehicle—D. D. Weisell, Fort Wayne, Ind.

309,409—Side Bar Wagon—G. D. Selby, Portsmouth, Ohio.

309,423—Side Spring Vehicle—W. J. Wayne, Decatur, Ill.

PATENTS EXPIRED DEC. 30, 1901.

309,866—Wagon Standard—S. Moore and L. C. Burling, Anita, Iowa.

309,869—Vehicle Axle—H. Olson, Olesburg, Kans.

309,884—Vehicle Spring—H. J. Schild, Stanton, Mich.

309,899—Carriage Top Joint—T. F. Van Luven, Kingston, Ontario, Canada.

PATENTS EXPIRED DEC. 23, 1901.

309,566—Vehicle Wheel—B. Schad and G. Hoffman, Lockport, N. Y.

309,607—Vehicle Running Gear—R. W. Davis, Elmira, N. Y.

309,805—Jump Seat Vehicle—F. A. Sands, Salisbury, Mass.

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No. 49.—The Real Thing.

You know how it is with hats and coats and socks—if you get fast colors you must pay the price. You can have the same cloth and style for much less money if the color is not warranted. Did you ever pause to figure up how much you must pay extra for the color that will not fade? Why it is quite surprising, now you come to think of it, what a large per cent of the price, in almost any article of wearing apparel, is due to the quality of the coloring.

Well, it is no surprise to us. We deal in colors, and we know the very great difference in the cost of the colors themselves. The real thing, in colors, is the work of Nature. The genuine are patiently grown in animals and insects and plants, or slowly formed in earths and rocks. Only at great expense can they be gathered from all quarters of the globe. There are tricks in modern chemistry by which all sorts of cheap and unreliable imitations of Nature's finest products are flooded on the market. It often happens that the imitation does not cost a tenth of the genuine; but you pay ten times more than it is worth, at that price.

Another thing—to speak of our own trade: it is very much easier and cheaper to work up the imitation materials into prepared colors than to work the genuine. The genuine always requires a special care and labor and appliance. Nature will not yield her fine values to any kind of slipshod work. If you want the imitation you can get it very cheap. The Murphy People use Nature's pigments—they prepare the real thing.

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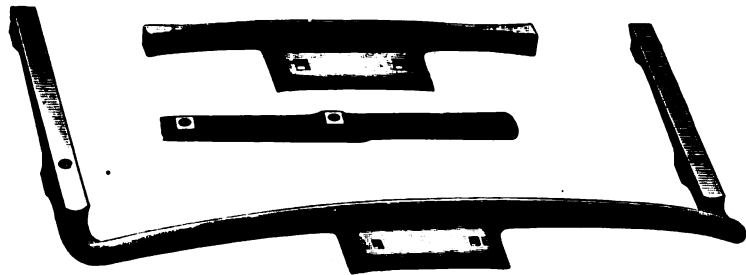
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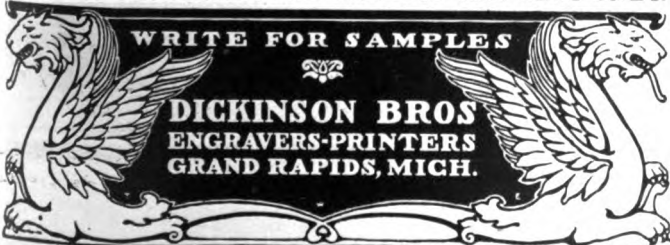
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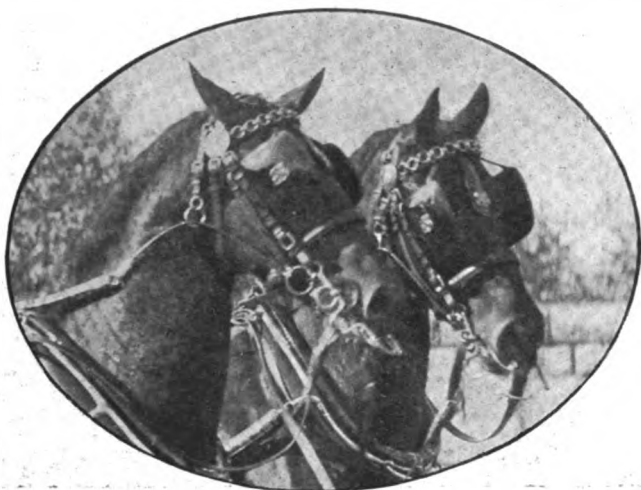
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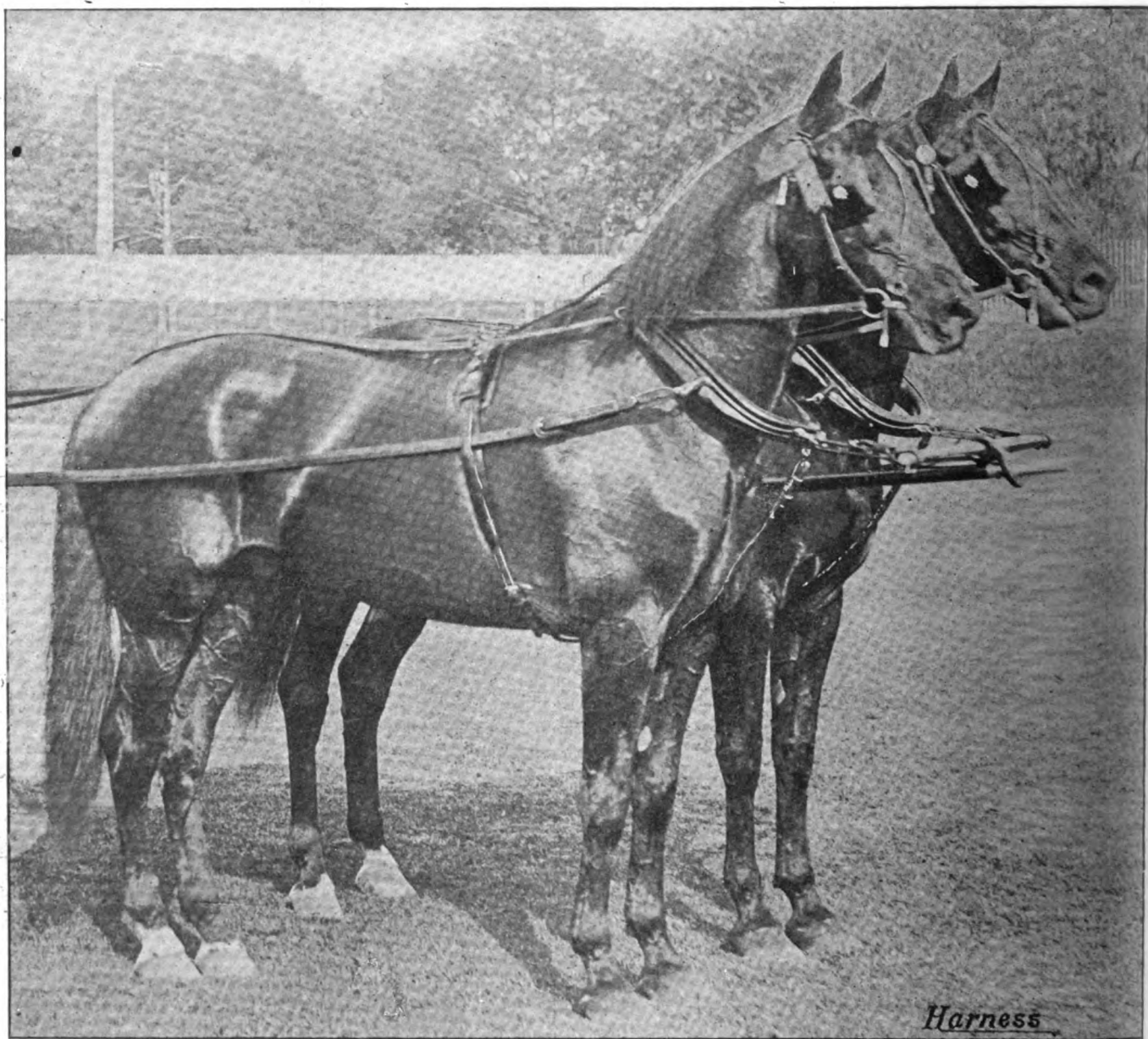
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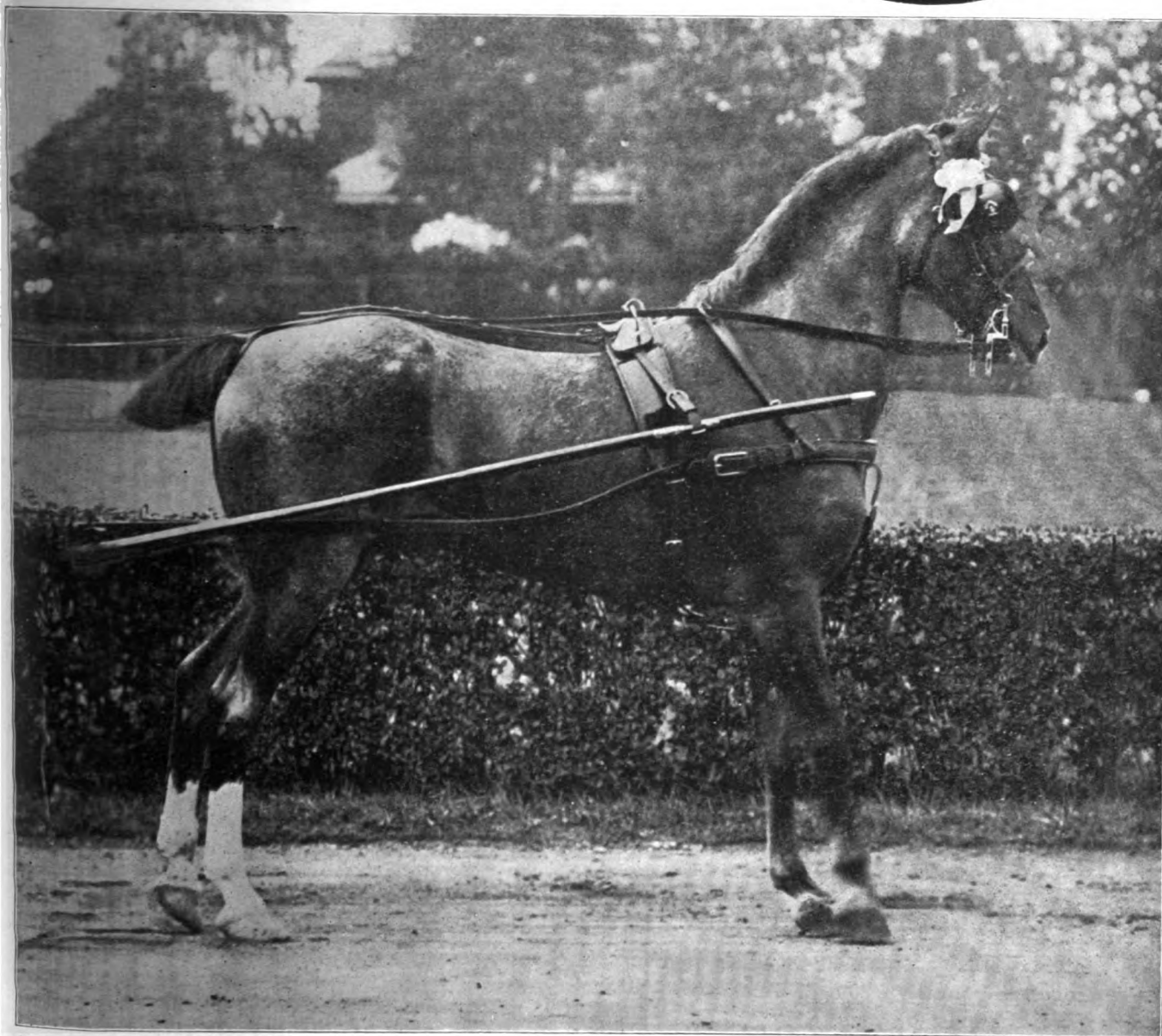


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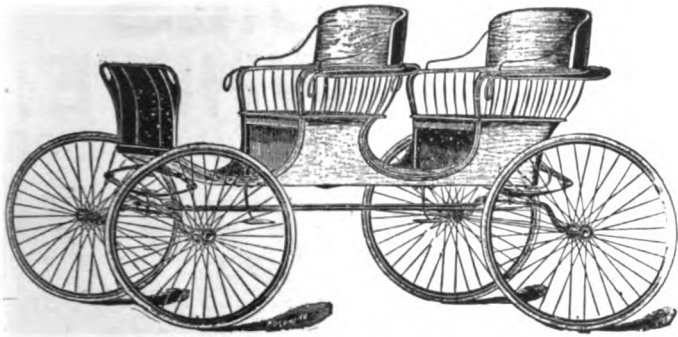
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Des Moines
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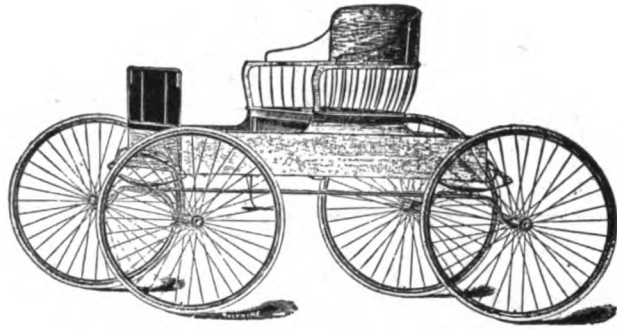
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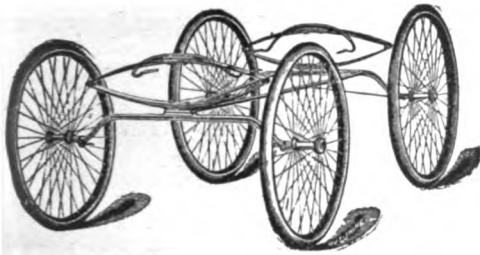
FITCH GEARS



FITCH PNEUMATIC SURREY (in-the-White).



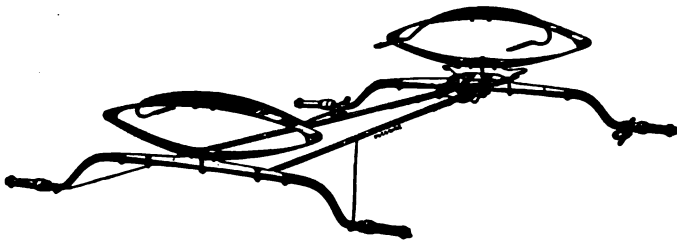
FITCH PNEUMATIC ROAD WAGON (in-the-White)



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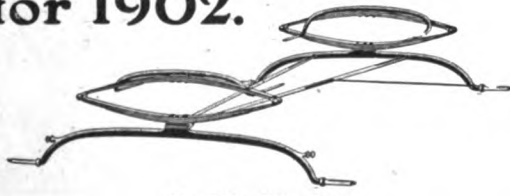
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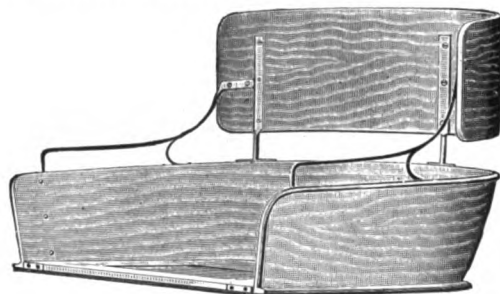
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No. 703. Bike Gear.



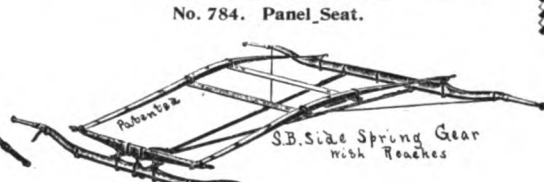
No. 784. Panel Seat.



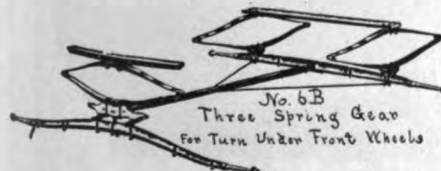
S.B. Improved
Side and End Spring Gear



No. 19 Premier



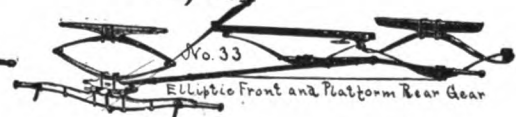
S.B. Side Spring Gear
with Rockers



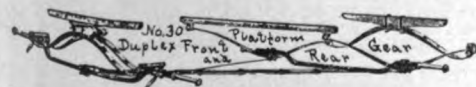
No. 6B
Three Spring Gear
for Turn Under Front Wheels



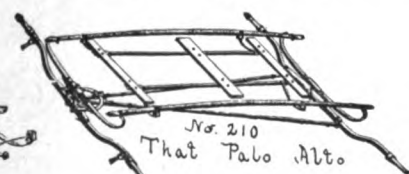
No. 21
Eclipse Gear



No. 33
Elliptic Front and Platform Rear Gear



No. 30
Duplex Front and
Platform Rear Gear



No. 210
That Palo Alto




No. 250
O.M. Elliptic Gear

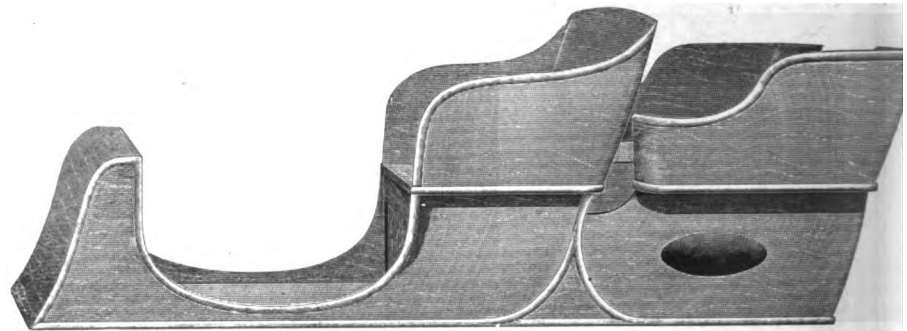
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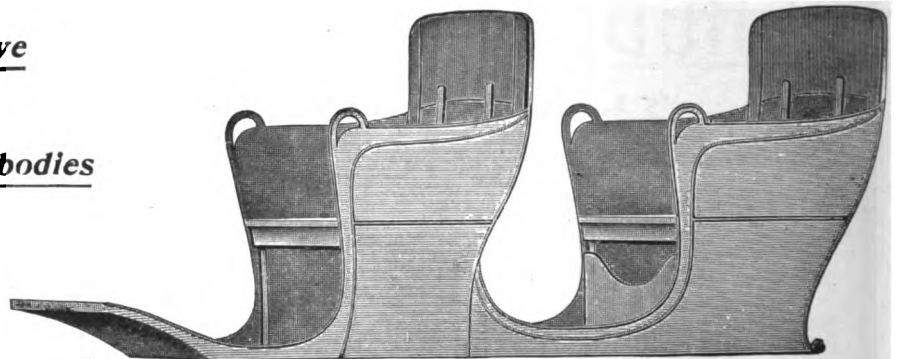
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A choice lot of stylish bodies
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624 WEST THIRD STREET,

**Our No. 500 Combination Buggy
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As it shows with
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As it shows with
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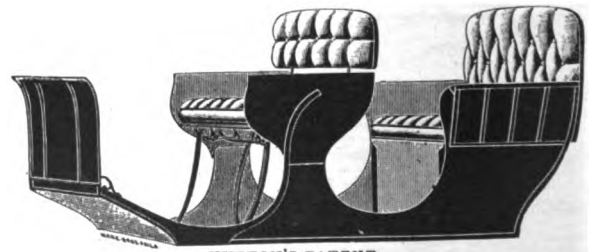
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Write for catalogue
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a full line of Surreys,
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TWO VEHICLES FOR PRICE OF ONE.

GUARANTEED FOR TWO YEARS IN ANY TERRITORY.



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CHILDS SEAT IRONS and JUMP SEAT IRONS

For Buggies, Surreys, Sleighs, Concord and Spindle Wagons, etc.

FOLDING DASH FEET, LAZY-BACK IRONS, etc. Made to suit any size
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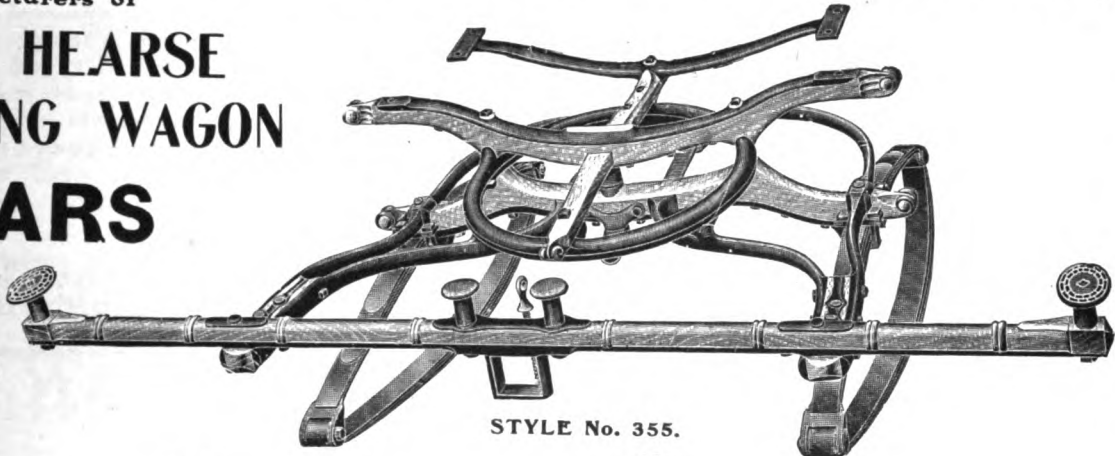
G. H. HUTTON & CO., Baltimore, Md.

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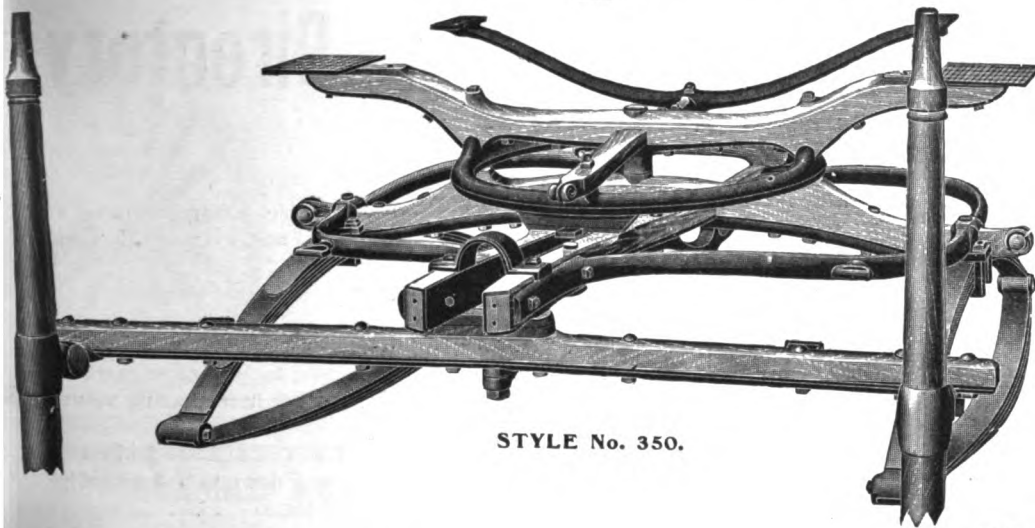
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Manufacturers of
**COACH, HEARSE
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and Wagon
Specialties.



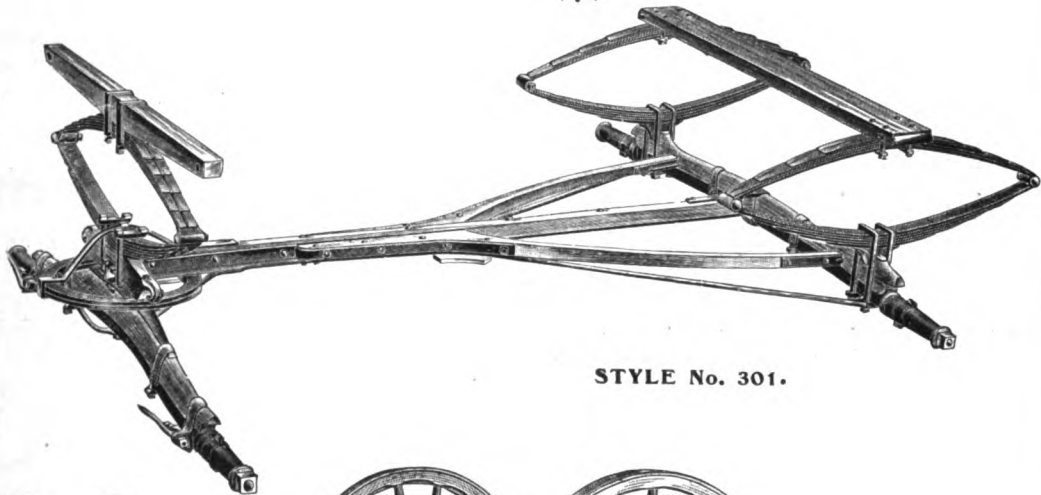
STYLE No. 355.



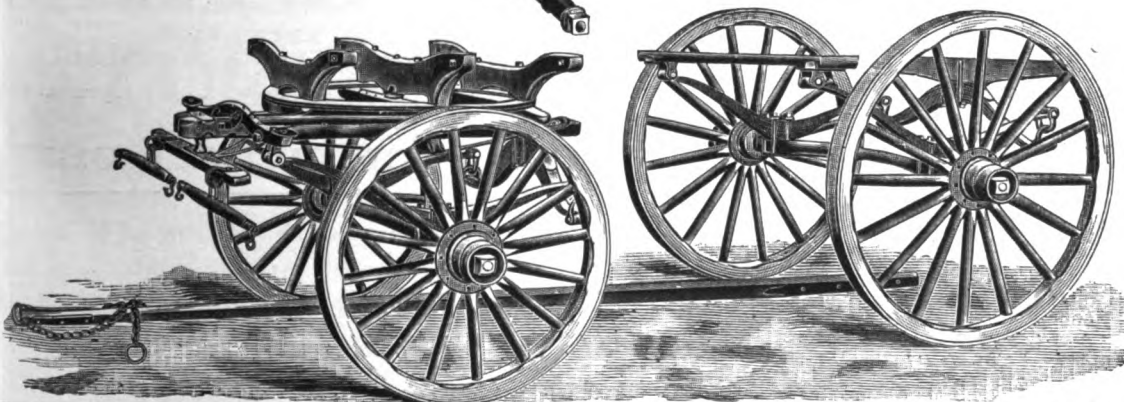
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Welded and Clipped,
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Spring Bars Ready to
Receive Body. Also
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Hardware. * * *



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bids fair to be the largest exclusive gear manufactory in the U. S., as we now own and control all the patents of the "Akron" gear, the Nichols patent and the Holman patents.

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We now have a line of patented gears numbering 393 sizes and styles, which is the largest and most complete gear line ever offered to the trade by any one factory in the world. Write for further particulars.



The Akron Gear Company,
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American Harness and Saddlery Directory EIGHTH YEAR.

AMERICAN HARNESS AND SADDLERY DIRECTORY FOR 1902 contains many valuable features and is an up-to-date twentieth century publication. This directory has **always** been the **standard**, and every edition has been an advance in accuracy and usefulness over the preceding issue.

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A **new part** has been added that will be found a very serviceable list of **dealers in harness**, as distinguished from *retail harness* manufacturers. To many who solicit the vehicle, implement and hardware trade, as well as department stores, this will prove of great convenience. These trades are handling harness and horse goods in increasing volume yearly, and such a list is a distinct advantage to the trade.

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Have never patronized THE HUB.

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WHEELS

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are made by



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Steel and Rubber Tiring a Specialty.



DURABLE AND HANDSOME.

Vehicle Wheels

ALL SIZES. ALL STYLES.

With or without Steel, Iron or Rubber Tires.

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BRINGARDNER & CONKLE

Manufacturers of

Carriage Woodwork,
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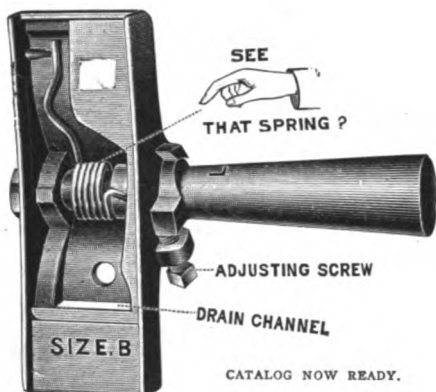
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GREATER CAPACITY THAN ANY OTHER
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THE Mercer Adjustable Tubular Spoke Wheels.
Especially adapted for Automobiles, Sulkies,
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sell reasonable, either royalty or outright, will give
exclusive, on any style of vehicle. See description on
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"SPRING" BRAKE-BLOCKS

For Steel or
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*Special Wear
Shoes for every
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HIGH GRADE STOCK
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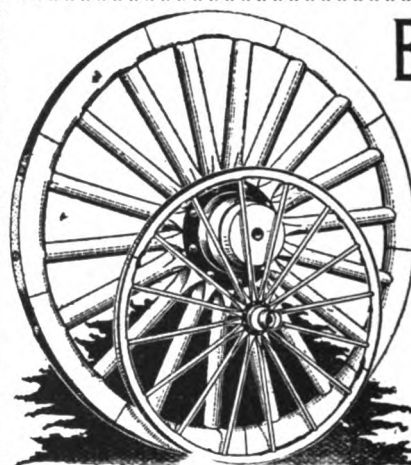
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**WHEEL MATERIAL AND
BENT WOOD WORK**

The Wheel & Wood Bending Co.,

Send for Catalogue. **BRIDGEPORT, CONN.**



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Manufacturers
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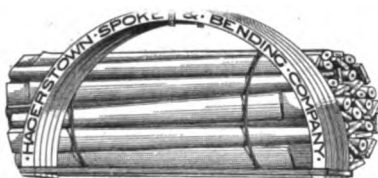
Wheel Stock and
Hard Wood Lumber

G. W. SEBOLD, Pres't. J. H. BEACHLEY, Vice-Pres't. F. S. BARRICK, Sec'y. S. A. MUNN, Treas. A. S. HARING, Supt.

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U. S. A.

MANUFACTURERS OF

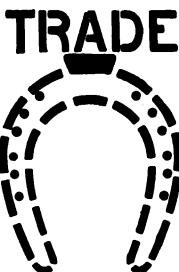
Spokes and Rims **TRADE**



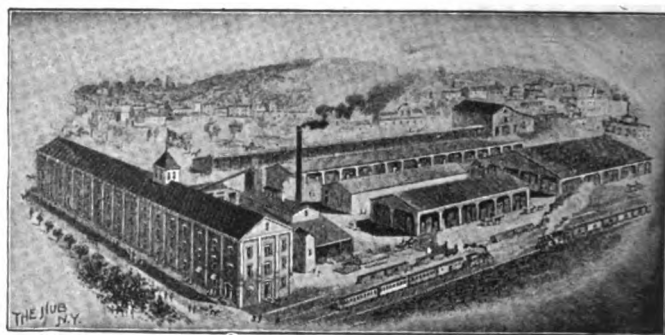
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**Hardwood, Oak,
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The
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brand of which
we export
largely. All
foreign and
American
patterns of
Spokes.



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Cable Address, "SEBOLD."

No more "open" corners.
Will not rattle.

Are very durable—in fact, practi-
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We obtain a beautiful plano polish
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Will not stain.

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THIS IS THE METAL AGE

And this is the **FUTURE** body for vehicles.



(PATENTED—PATENTS PENDING.)

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We have already booked orders
from some of the largest manu-
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The finish is far more durable than
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The moment you equip the East-
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you enhance the value of your
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**MADE ENTIRELY OF
METAL,
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WHEELS SARVEN. WARNER,

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The only patent and interchangeable hub now on the market. This hub has been fully tested for the last six years and is standing any test of strength, from the lightest buggy to a fifteen ton test. We make these in all sizes. Our wagon wheels run from 24 inches to 42 inches high. Our wheels weigh from fifty to one hundred and twenty-five pounds, owing to the strength of tonnage required. We will either furnish the wagon complete or can furnish wheels of any size and weight required, from the lowest truck wheels to the highest standard wheel, or higher by special order. We also make a full line of carriage wheels with enamel steel spokes, with aluminum hubs or malleable hubs if desired. We make these wheels for different tires. Pneumatic, cushion, solid rubber or steel tires are the ones we now use. These wheels have been thoroughly tested, and can be sold on a guarantee. Fully as light and much stronger than wood wheels.

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They also add years to the life of the vehicle as well as the driver. We also manufacture a high grade buggy gear with ball bearing or long distance axles, with either hickory or steel wheels, pneumatic, cushion and solid rubber tire.

For further particulars please write or send for our 1902 catalogue. Mention this paper.



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PIONEER BRAND CARRIAGE TOP HARDWARE.

"IMITATION IS SIN" "CEREST FLATTERY."

The "genuine," however, has all the attributes of the "imitation" but none of the latter's disadvantages,—such as short counts, "job lots" of raw materials, inferior finish, seconds and thirds indiscriminately packed with firsts to "work them off."

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They not only "are just as good," "answer the purpose," "do the work," but also "their prices count" and "their dependable quality makes them most satisfactory and economical in the long run."

MEASURE COSTS BY RESULTS,—NOT ALWAYS BY FIGURES.

BOW SOCKETS.

All styles in both japanned and leather covered.

TOP BRACES.

The RIGHT kind; improved double head rivet originated by us, imitated by every other manufacturer.

SHIFTING RAILS.

Electric welded; all varieties of style and detail.

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Seventeen styles and sizes in japanned and leather.

CURTAIN LIGHTS

Oval, oblong, square, round. Plain glass or bevel.

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Japanned and nickel; plain and imitation stitched; capped and solid head.

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Three styles, all good.

TOP PROPS.

Solid or screw bases. Properly threaded to fit nuts.

WAGON CURTAIN PATCHES.

Best selected leather used. Nothing else satisfactory.

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Styles and sizes too numerous to mention—cast and wrought.

CURTAIN FASTENERS

I. X. L., SNAP, and others; these two the best.

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Japanned, X. C., nickel, steel and brass; very durable; made from heavy stock.

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Japanned, cloth covered, leather covered, composition, eye and clinch—tacks and nails galore.

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Capped and solid head. Packages or bulk. Japanned or bright.

MANY OTHER ARTICLES.

Our catalogue tells of them. Keep it at hand for consultation.

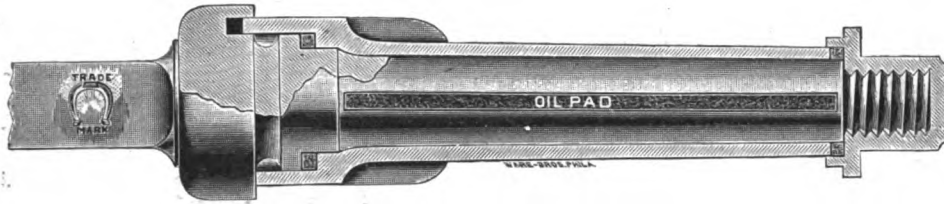
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Also Manufacturers of the best "Concord Express Axles."

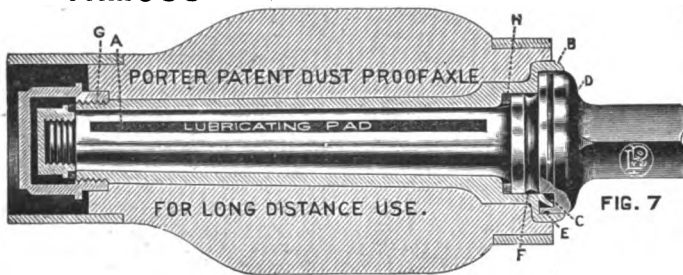


SPEARS AXLE CO., WHEELING, W. VA., U. S. A.

"THE FAMOUS

PORTER PATENT DUST PROOF AXLE."

FOR LONG DISTANCE USE



The only "2,500 Mile" Standard Axle in existence.

By actual test this Axle has run 2,500 miles with one oiling, and 1,500 miles with one oiling without the Lubricating Pad.

Porter Patent Ball Bearing Axle.

This axle is fitted with the Famous Porter Patent Dust Proof Collar and V-shaped extension, making it absolutely dust and water-proof. 7,000 sets in use. Never had a ball crush. Never had a call for repairs. Write for particulars. Prices now within reach of all.

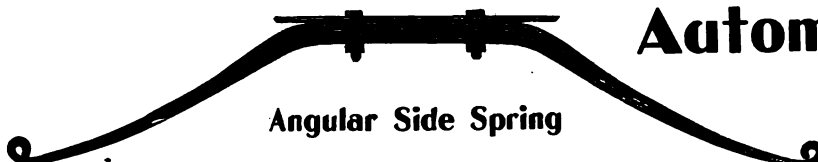
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Hartford Axle Company.

Good Axles are the result of experience, careful attention to smallest details, and the constant desire to improve. The continual upbuilding of our reputation has been guided by these principles, and a trial of our work will convince you of the excellence of our product. We make all styles, including the Brewer.

- - **Dunkirk, N. Y.**

Automobile Makers



Angular Side Spring

The Angular Side Spring shown is just now the favorite.



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For Springs go to the....

Tuthill Spring Co.

who are headquarters for such Springs and make any shape, size or design to order. EXPORTERS AND BUGGY MAKERS affect chiefly the Elliptic Spring either regular or open head.

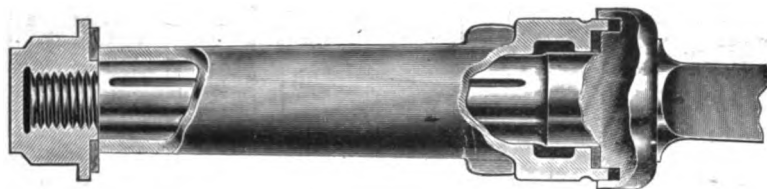
All shapes made by

Tuthill Spring Co.

315 CLINTON ST., CHICAGO, ILL.

Collinge Collar Axle

♣
An Axle
of which all
have heard,
many used
but few seen
in print.
♣



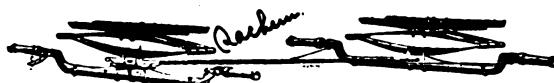
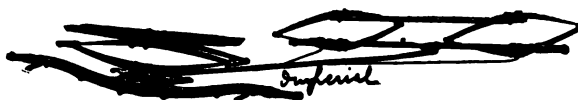
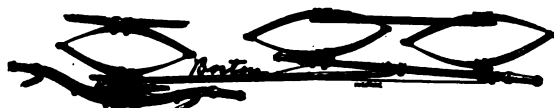
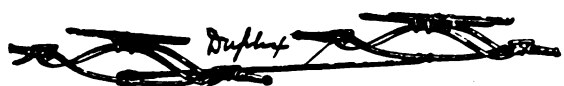
As proportioned by us we feel it is at the *head of its class*, and therefore present this cut, hoping it will induce you to give our axles a trial.

To it, when desired, we can at a small extra cost apply the Brewer Longitudinal Axle Lubricator, which is the simplest device known for *continual lubrication* and has the *added merits* of not weakening either arm or box by the removal of metal at vital points, and *not allowing* oil to leak out.

Dalzell Axle Company

SOUTH EGREMONT, MASS.

Forsberg Spring & Gear Co.



QUICK SELLERS. • LOW PRICES.

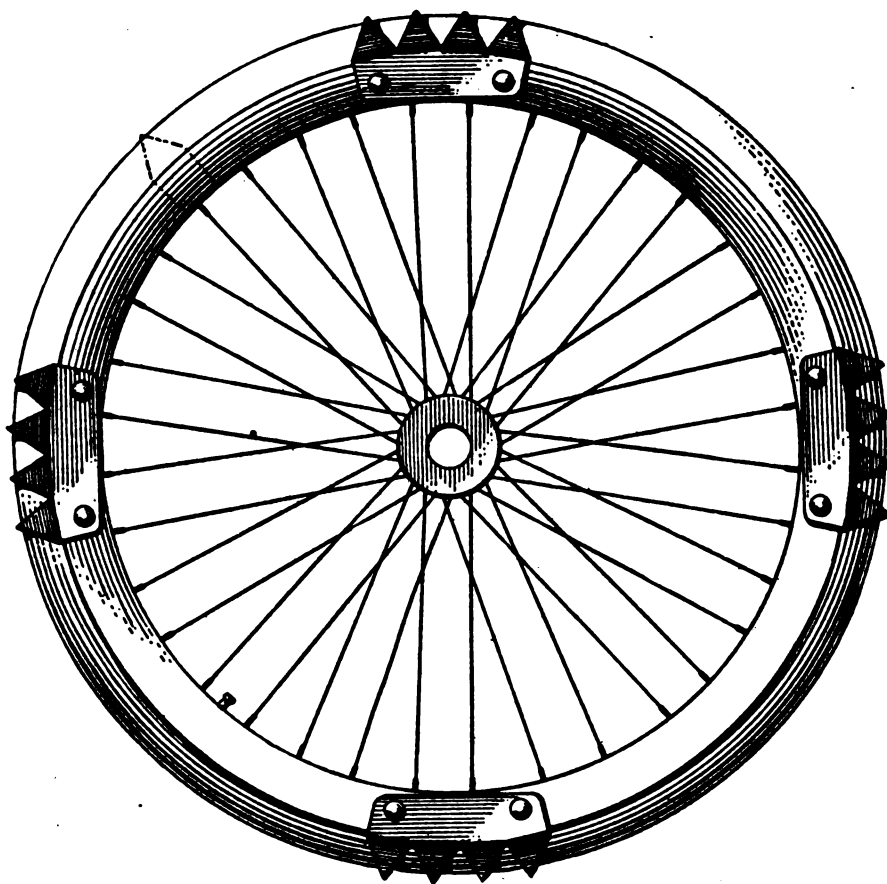


We protect and defend our patents.

The "Triad" Spring is the best of its kind on the market.
Give it a trial and you will want no other.

SEND FOR CATALOGUE showing
our full line of GEARS, SPRINGS
AND WAGONS in the White.

Forsberg Spring & Gear Co.,
Rome, N. Y., U. S. A.



See
Those
Teeth?

The Gripping Members on the Rim of the Wheel
Prevent Slipping on Mud, Ice or Snow

*They are easily and quickly removed when summer comes.
 They will save the price of a tire in preventing it from
 tearing loose.*

They can run on ice on a 60 per cent. grade.

*They are the ONLY device that SUCCESSFULLY SOLVES
 THE SLIPPING PROBLEM.*

CAULFIELD'S
PATENT GRIP WHEEL
FOR AUTOMOBILES

U. S. A. Patent No. 670,664

Canadian Patent No. 71,089

**Particulars on
 Application to**

JOHN CAULFIELD,

74 Nelson Street

BROOKLYN, N. Y.

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== FOR SWELL TURNOUTS ==



Thousands in Use all Over the World

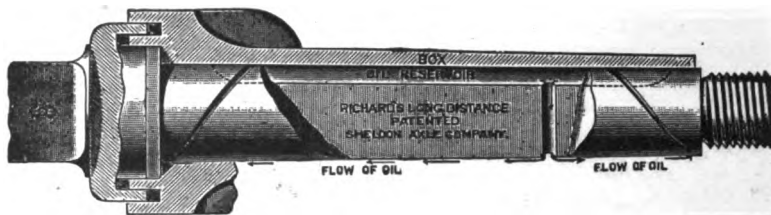
*Our Two-Leaf Spring for Buggies, have you tried them?
If not, write to us and let us tell you why it is to your
interest to use them. Oblige us by mentioning this
paper when you write. : : : : : : : :*

J. B. ARMSTRONG MFG. CO.
FLINT, MICHIGAN

ALL KINDS OF CARRIAGE AND WAGON SPRINGS

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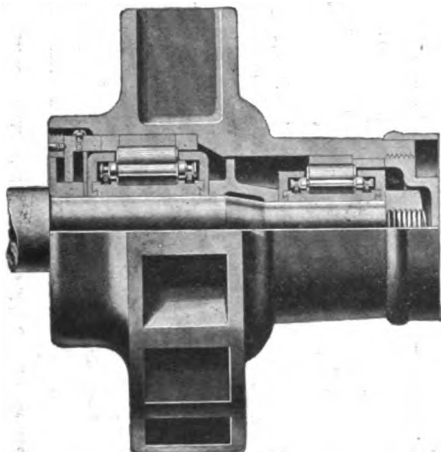
SHELDON AXLE CO.



They are now prepared to furnish BIKE WAGON AXLES in any quantity, promptly, ready for welding to fifth wheels and centres. . . The RICHARDS "LONG DISTANCE" (the only long distance axle made) still leads. There are many cheap imitations on the market, but only one real thing.....

SHELDON AXLE CO., Wilkes-Barre, Pa.

Not only CLAIM to make the best Axles and Springs made in the world, in each of their grades, but DO SO.



American Roller Bearing Co.,

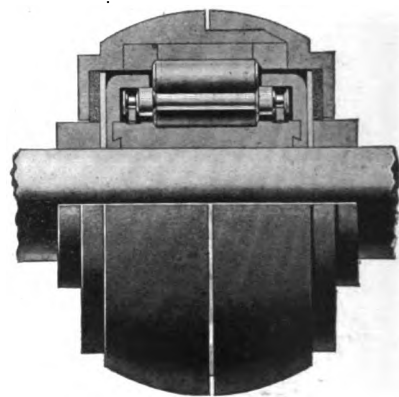
OFFICES AND FACTORY:
32 Binford Street, Boston, Mass.

Hubs, Wheels and Axles for all kinds of Carriage, Automobile, Wagon and Heavy Truck work.

Also single bearings for Shafting, Motors, Sheaves, Car Bearings, Automobile, Driving Axles, etc.

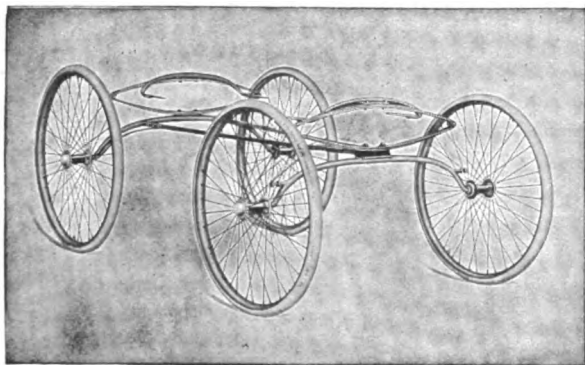
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LONDON, ENGLAND.

WESTERN DEPT.,
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CHICAGO, - - - ILL.



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Steel Rims

Automobile Steering
Devices

Ball-Bearing Carriage Axles

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Catalogue "D"

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JAMESVILLE, N. Y.

We Will Pay You Cash to Answer this Advertisement

Cut this out. Send it to us with your address. We will send you free of charge, our
1902 500 Page Catalog
Which contains net wholesale prices, on everything necessary for ...



**Wagons & Buggies
Finished Vehicles
Harness
Blacksmith Tools
Wagon & Carriage
Hardware
Paints & Varnish**

We make wheels, we put tires on them, we weld axles, we set the boxes in the wheels. If you are a new customer we will send you with the catalog a coupon worth

\$1.00 IN CASH

Which can be used in purchasing goods from us.

MUNCIE WHEEL & JOBBING CO.

Taken from THE HUB,
February, 1902.

MUNCIE, IND.

Please mention "The Hub" when you write.

The Greater the Success The Greater the Failure

Note the details of the success you are making, but also make note of your mistakes — you may be making some. If you have been using

Bailey's Bull-Dog Shaft Eyes

duplicate your success with them; if you have not, make note of that failure, and fix things so it won't happen again. Makers who are using

Bailey's Bull-Dog Shaft Eyes

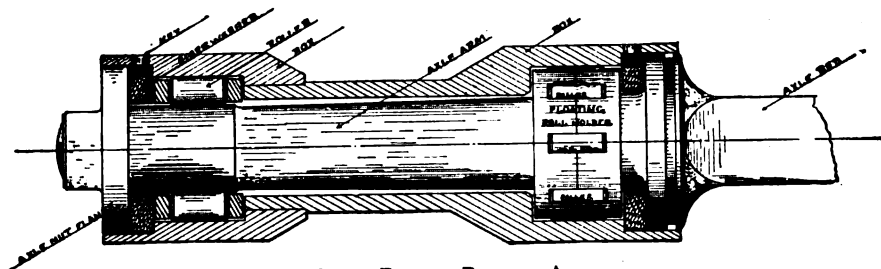
are finding success, and, by the same logic, dealers who are not using them are making a mistake. There is no doubt about it:—

Bailey's Bull-Dog Shaft Eyes

excel in every essential part, and more.

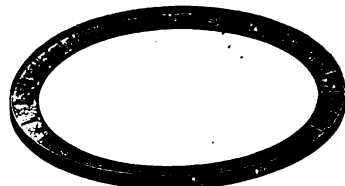
***S. R. Bailey & Co.
Amesbury, Mass.***

For Truck, Wagon and Carriage Manufacturers



MORSE ROLLER BEARING AXLE

Immense
Reduction
in Draft



Morse Roller Bearing Fifth Wheel

The Roller is to the Axle what the Wheel is to the Wagon

BANTAM MFG. CO.

23 Warren Street, New York

BANTAM, CONN.

C. COWLES & C^o

Ask us to quote
on Carriage and
Coach Lamps,
Axle and Saddle
Clips, Oval and
Flat Corner
Irons, "Excel-
sior" Curtain
Fasteners.

NEW HAVEN,
CONN, U. S. A.

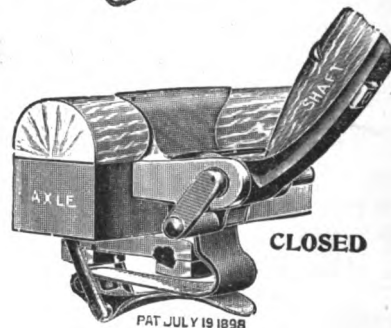
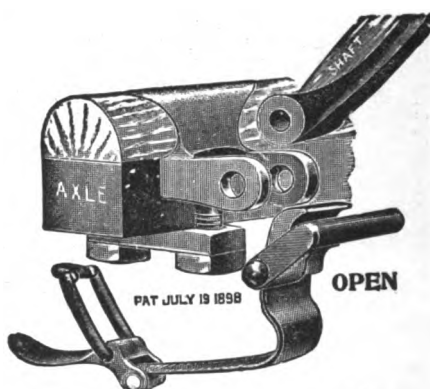
MILLED SHACKLE
BOLTS, CLOTH
AND METAL
BUTTONS,

Door Handles,
Shaft Tips.

WE ARE HEADQUARTERS FOR ABOVE.

LARGEST VARIETY
OF LAMPS FOR
..1902..

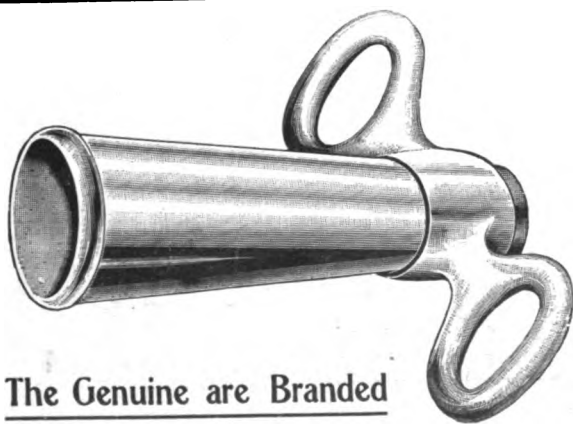
IDEAL Quick Shifter and Anti-Rattler



The "Ideal" never fails. It is the most complete Anti-Rattler and Quick-Shifter on the market. Fits any wagon, new or old, without the use of mechanic or tools. Can change from pole to shaft in less time than it takes to tell it. Hand forged steel bolt, HEAVY BEARINGS, NO RUBBER OR LEATHER to get out of order. Oneida Community trap steel spring. A postal card will bring you price list. The "Ideal" is extremely popular—it helps sell carriages. They are their own testimonial. Send fifty cents for a trial pair.

IDEAL MFG. CO.,

Oneida, N. Y., U. S. A.



The Genuine are Branded
N. C. Metal Co., Boston.

7 in. pod sizes	1-7/8 in.	6 in. pod sizes	1-1/4 in.
" " "	1-15/16 "	" " "	1-3/8 "
" " "	2 "	" " "	1-1/2 "
		" " "	1-5/8 "
6-1/2 in. pod sizes	1-7/8 in.	" " "	1-11/16 "
" " "	1-3/4 "	" " "	1-3/4 "

NEW PROCESS NICKEL STEEL POLE CRABS

The Kind that Do Not Rust.

Over 10,000 In Use.

MADE ONLY BY THE

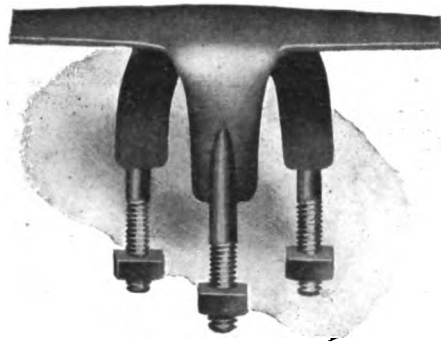
NON-CORROSIVE METAL CO.

Office and Factory, 37-39 PITTS ST., BOSTON.

CABLE ADDRESS, WILLS, BOSTON.

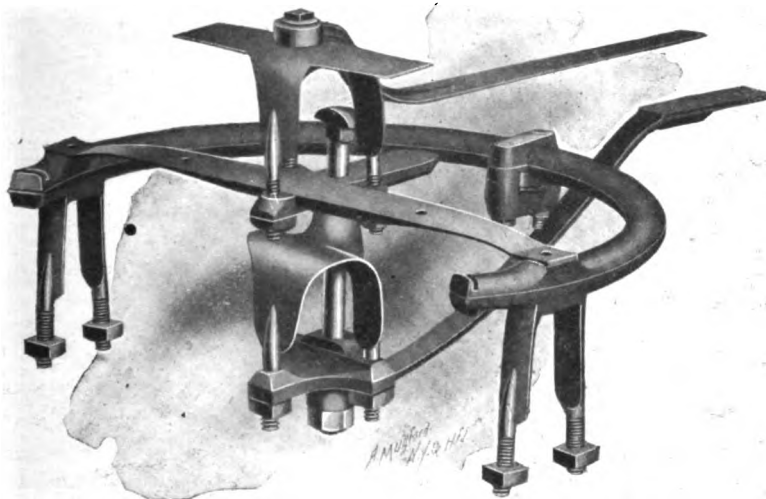
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*Our
1902
Swell
Special
Single
Reach
Gear
Sets
for
Buggies
and
Surreys.*



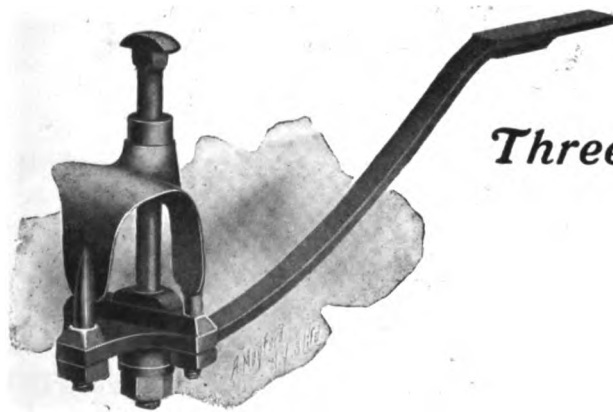
***Three Prong
Saddle Clip.***

Patent applied for.



Gear Set.

Patented.



***Three Prong
King Bolt Clip.***

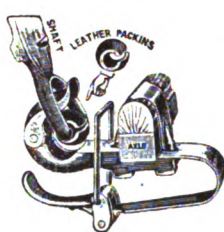
Patented.

THE D. WILCOX MFG. CO.,

MECHANICSBURG, PA.

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AN IRRESISTIBLE MAGNET



The reduction in price of a staple, well known Coupling, like the

BRADLEY SHAFT COUPLING

will prove an irresistible magnet to every vehicle builder, dealer and owner.

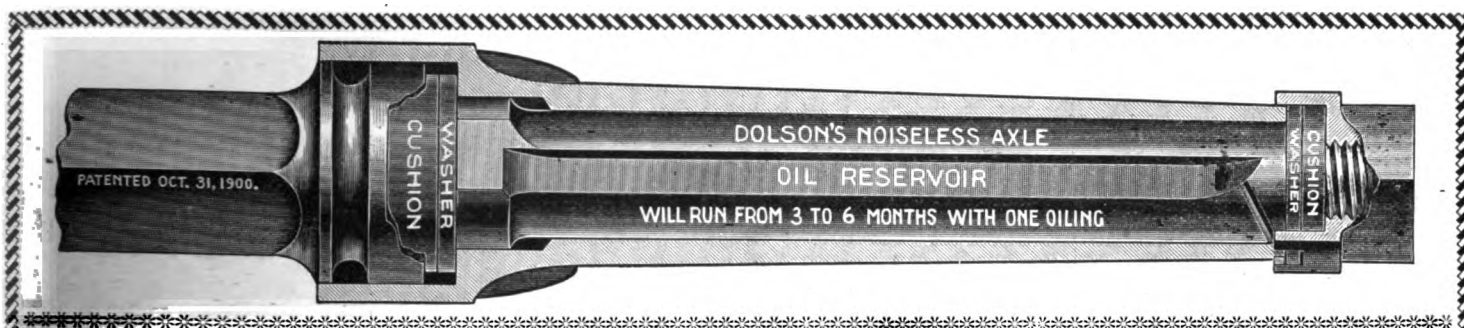
BRADLEY COUPLINGS,

"the best ever," now cost much less than ever before, yet the quality has advanced.

Every metal part of every BRADLEY is made of STEEL.

The Leather Packing takes up all wear, the spring makes it silent. BRADLEY COUPLINGS make a good carriage better; they help sell vehicles. There are over 500,000 Pairs in use and giving satisfaction. Our booklet and circular are yours for the asking.

C. C. BRADLEY & SON, SYRACUSE, NEW YORK.



Dolson's Noiseless Axle

THE GREATEST IMPROVEMENT ATTAINED IN AN AXLE

IS absolutely noiseless, even though the washers have become badly worn. This Axle is constructed with a cushion in the collar and the nut. These cushions relieve the wheels from sudden jars. The fibre washers rest against the cushions and are so constructed that they do not revolve. The fibre washer which is contained in the nut when in place rests against the shoulder of the arm and the point of the box. The spiral groove at the point of the arm prevents the exit of oil. The peculiar shaped groove on the top of the Axle collects the oil from the box as the wheel revolves, and the "V" opening allows it to escape. This Axle is not complicated in its construction—simply put on the nut and screw it up. It is neat and tasty in appearance, will run from three to six months with one oiling and is the only Axle specially adapted to rubber tire vehicles, as it will not rattle or jar under any circumstances.

FOR FURTHER PARTICULARS AND PRICES, ADDRESS,

Liggett Spring and Axle Company,
PITTSBURG, PA.

THE OLD
RELIABLE

THE
**J. A. & D. P.
COOPER
CO.**

We are furnishing our Ironed Up Sets better and at lower prices than you can assemble the parts and put them up yourself.

We have greatly increased our factory facilities and are giving prompt service.

We are recognized leaders and the only practical carriage makers in the gearwood trade.

We furnish all styles of gearwoods made to order.

THE
J. A. & D. P. COOPER CO.
STRUTHERS, OHIO

ONLY WELDING COMPOUND
Awarded
MEDALS and DIPLOMAS at CHICAGO and OMAHA
EXPOSITIONS.

The Best Flux known for Welding
IRON STEEL



IRON, STEEL,
and MALLEABLE Iron to Steel.

PRINCIPAL OFFICE AND FACTORY,
PATERSON, N. J.

CANADIAN BRANCH,
HAMILTON, ONTARIO.

Agents for Great Britain and Ireland,
PEARSON BROS. & CAMPBELL,

Head Office, 5 Castle St., Liverpool.
Branch Office, 115 Clare St., Northampton.

CHERRY HEAT WELDING COMPOUND

THE ...
PIONEER

INTRODUCED 1873—IT LED THE WAY.

IN 1902—IT STILL LEADS.

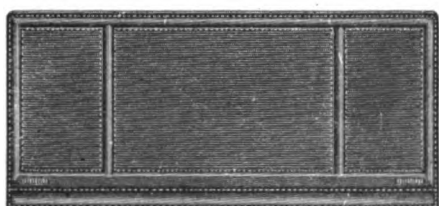
Sales in 1901 the Largest in
history of the business. ♡ ♡

Order from your Hardware Merchant, or send for
Sample (no charge), Circular and Price List to our
English Agents, or to

The Welding Compound Co.,

PATERSON, N. J. or HAMILTON, ONTARIO.

Metallic Dashes and Fenders



STRONGER THAN LEATHER.

OUR Metallic Dashes have now stood the test of eight
years. They are better and at the same time stronger
than leather. They are coated with a rust-proof com-
position and lined with double thickness of felt. Do not crack
or rattle and have a finer finish than leather. They are japanned
under a heat which burns and rots leather.

Our illustrated pamphlet should be in your file. Send for it,
and also for price list.

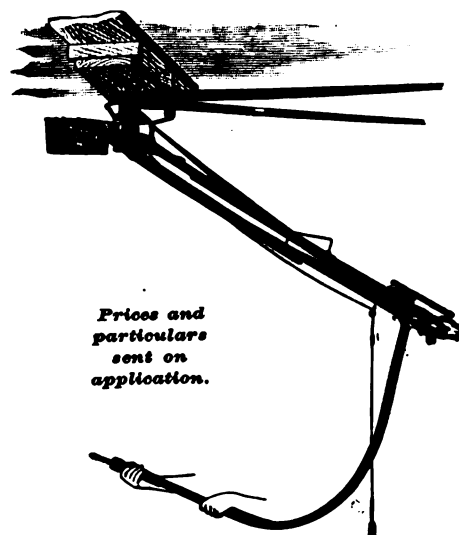
We can furnish you with Dashes
which will increase your busi-
ness and save Money for you.

Bennett Mfg. Co.,
HUNT, N. Y.

Flexible Boring Machine.

Perfected.

Bores holes at
any angle with-
in a circle of
twenty feet or
more. **USES
FLAT BELT.**
Has bearings of
friction pulley
covered, thus
overcoming
every objection
made to the old
machine, of
which there are
thousands in
daily use.



Prices and
particulars
sent on
application.

...STOW...

Manufacturing Co., - Binghamton, N. Y.

General European Agents,

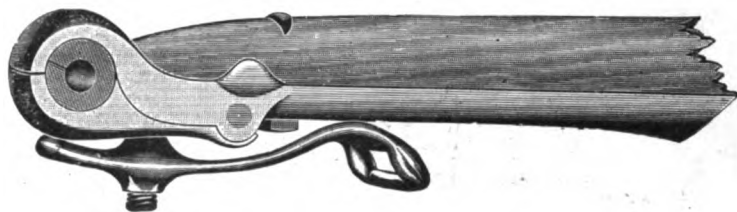
Selig, Sonnenthal & Co.,

85 QUEEN VICTORIA ST., - - - LONDON, ENG.

Please mention "The Hub" when you write.

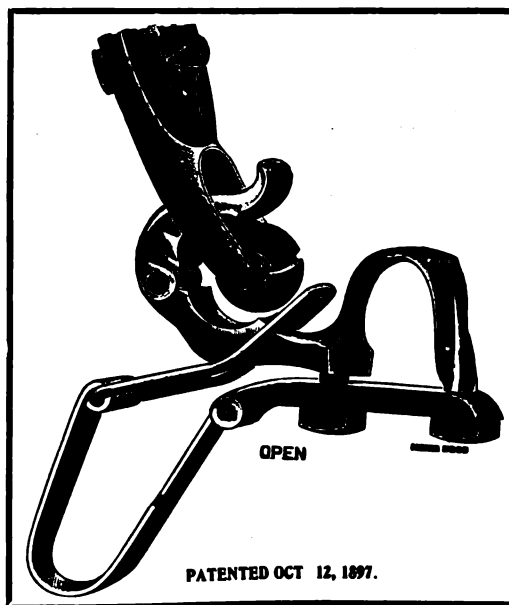
Eccles Adjustable Shaft Eye.

PATENTED AUGUST 28th, 1904.



Ball Bearing Shaft Coupling.

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PATENTED OCT 12, 1897.

ALSO GET OUR CATALOG SHOWING FULL LINE OF

Carriage Forgings.

RICHARD ECCLES CO.,
AUBURN, N. Y.

C.H.A.T.

Helps Secure Situations.

**Carriage, Harness and
Accessory Traveling
Salesmen's Association
OF THE UNITED STATES.**

All Commercial Travelers in Above Lines Eligible.
No Others. Pays Death Benefits.

Membership Fee, - - \$3.00

Annual Dues, - - - - 1.00

Employers of Traveling Men eligible to join as associate members on payment of \$5.00, and are exempt from all further dues.

Manufacturers of carriages, harness or goods that enter into their construction, jobbers of same, can secure good, reliable and efficient salesmen through our Association, as the members of this Association have the best facilities for knowing all about men who are seeking situations, and none will be recommended unless they are first class and worthy of support.

Salesmen in need of a situation, or manufacturers in need of a salesman, address for further information,

L. H. KRONFELD, Secretary.

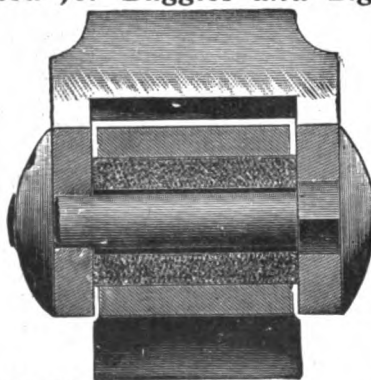
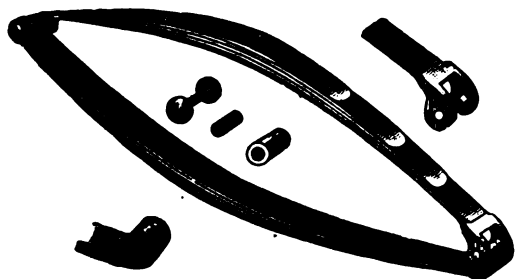
Box 57, Mount Vernon, N. Y.

Elliptic and Coach Platform Springs

WITH RUBBER OPEN-HEADS.

LARGE SIZE.—Designed for Broughams, Landaus and Coaches.

SMALL SIZE.—Designed for Buggies and Light Carriages.



The Rubber Open-Head

SPRINGS

Work Freely Without Friction.

No Binding or Squeaking in
the Heads or Eyes.

SPRINGS OF EVERY STYLE AND PATTERN TO ORDER,
ALSO CURTAIN ROLLERS AND CONCEALED HINGES.
Exclusively First-Class Work.—The Best that Can be Made.

Spring Perch Co.,
BRIDGEPORT, CONN.

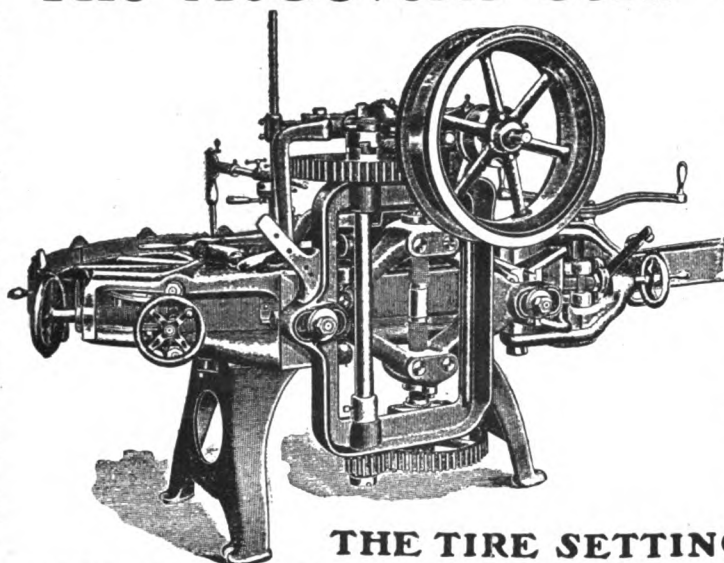
Please mention "The Hub" when you write.

The McGovern Cold Tire Setting Machine

HAND AND POWER MACHINES

To Supply the Demands of the

CARRIAGE AND WHEEL TRADE, AND ALSO THE
BLACKSMITH AND GENERAL REPAIRER.



A power machine with an automatic attachment, and where the operator has absolute control of the machine; can stop or start it instantly at any point in its operation.

Simple in construction. Powerful in operation. Reasonable in price. Does its work thoroughly, accurately and rapidly, giving proper and uniform dish to wheels.

THE NEW MODEL MCGOVERN COLD TIRE SETTING MACHINE

with its increased capacity, simplicity and strength, all three points being more than tripled in this new machine, we guarantee to set Tires ranging from $\frac{3}{4}$ inch to $2\frac{1}{2}$ inch x $\frac{1}{2}$ inch. Our daily capacity from 800 to 1,000 wheels.

We shall be at the Pan-American Exposition in Buffalo. Our machine will be in operation at the factory of the Buffalo Spring & Gear Co., three minutes' walk from the grounds.

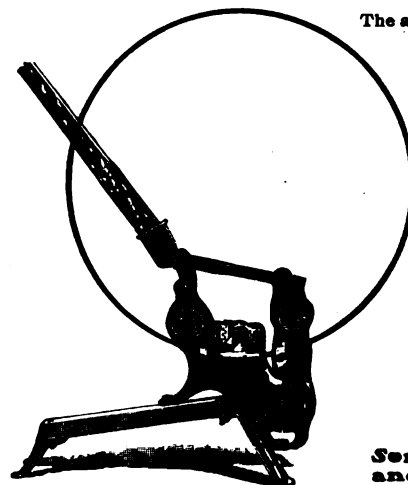
THE TIRE SETTING MACHINE CO., Lime Rock, Conn.

J. G. ROUSE & CO.,

Carriage Cloths, Carpets,
Leather and Rubber.

413 Arch Street, Philadelphia, Pa.

The Ideal Tire Upsetter



The advantages of the ideal are:

The tire cannot kink.
One man can operate it.
One movement does the work.
It will shrink light Buggy tire.
It will shrink Heavy Wagon tire.
It will shrink Truck tire.
It will shrink perfectly all kinds and thicknesses of tire.
It is the easiest handled.
It is the most durable.
It is the latest and best.

Send for Circular
and Price ~~FREE~~

Manufactured only by **WEYBURN & BRIGGS CO.,**
718 Main St., Rockford, Ill., U. S. A.



A New Tire Drill

Most rapid
working tool
on the market
for this class
of work.

Capacity:

Any wheel up to 66 in. diam.
Any width of tire up to 6 in.
wide.
Any hub up to 10 in. diam.

Better get
some de-
tails of this
Drill.

Send for
Catalogue.

Established 1872

**W. F. & JNO.
BARNES CO.**

588 Ruby Street,

ROCKFORD, ILL.



BOLT AND RIVET CLIPPERS

Chambers Brothers Co.
52d Street, below Lancaster
Avenue,
Philadelphia, Pa.

**BOSTON
ROLLER
CHAFE
IRONS**
ARE THE
BEST

Your Job
Is Not
Complete!

Unless equipped with

THE BOSTON

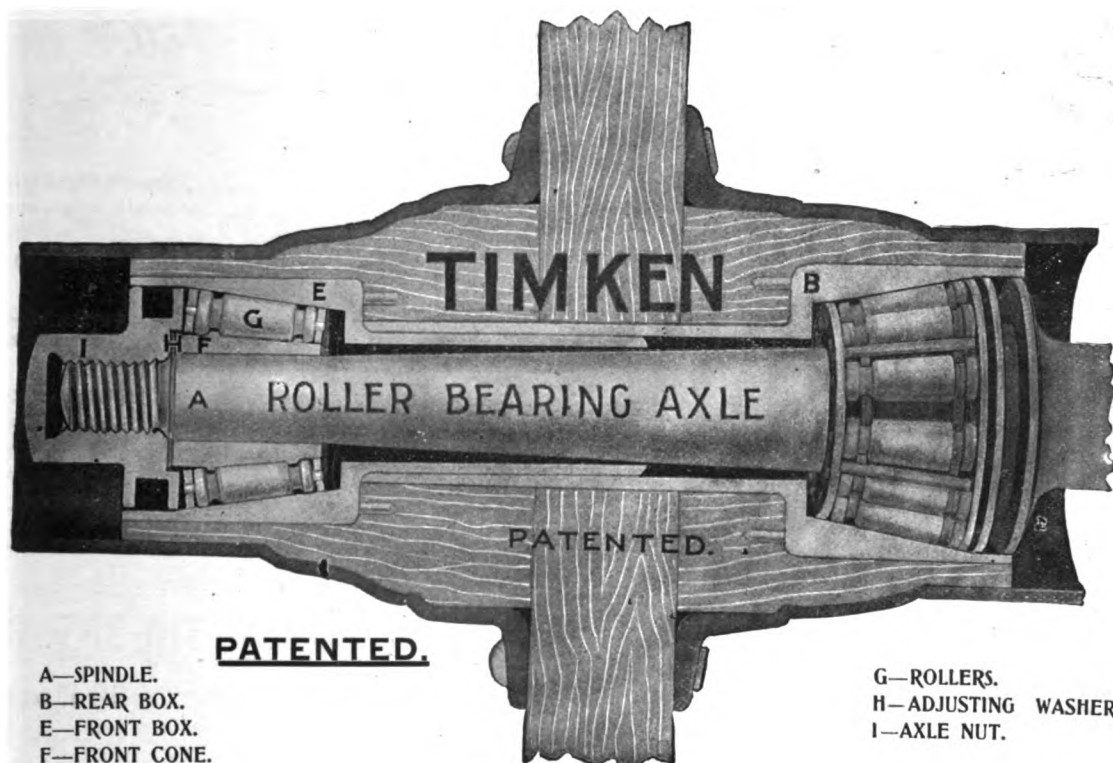
We Build Them and Sell Them.

BOSTON ROLLER CHAFE IRON CO.
178 DEVONSHIRE ST. BOSTON, MASS.

Please mention "The Hub" when you write.

HIGHEST AWARD

At Pan-American Exposition.



We are now in our NEW FACTORY AT CANTON, OHIO, where we make all the different parts of our axle.

IMMENSE REDUCTION

in prices of the small sizes.

Secure special proposition for cataloguing our axle. Many of the leading firms have adopted it for 1902.

Timken Roller Bearing Axle Co.

Main Office and Factory: CANTON, OHIO.

BRANCHES: { ST. LOUIS: 1219-1221 N. Broadway.
NEW YORK: 1769 Broadway.
CHICAGO: 171 La Salle Street.

Address all communications to
Canton, O.

STOCK OF AXLES CARRIED AT CANTON, NEW YORK AND ST. LOUIS.

"Silver's" New Band Saws for CARRIAGE MAKERS, WAGON MAKERS AND WOOD SHOPS OF EVERY KIND.

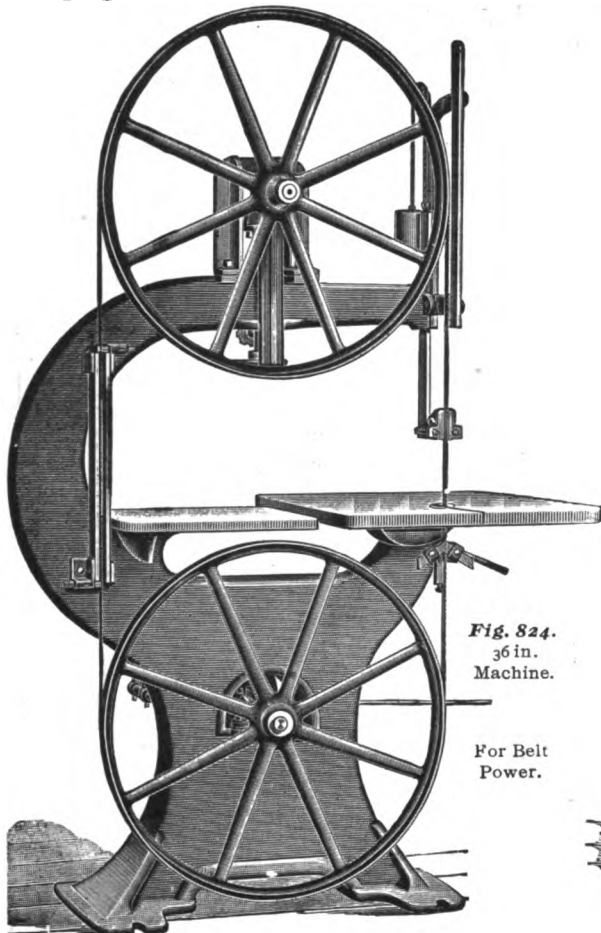


Fig. 824.
36 in.
Machine.

For Belt
Power.

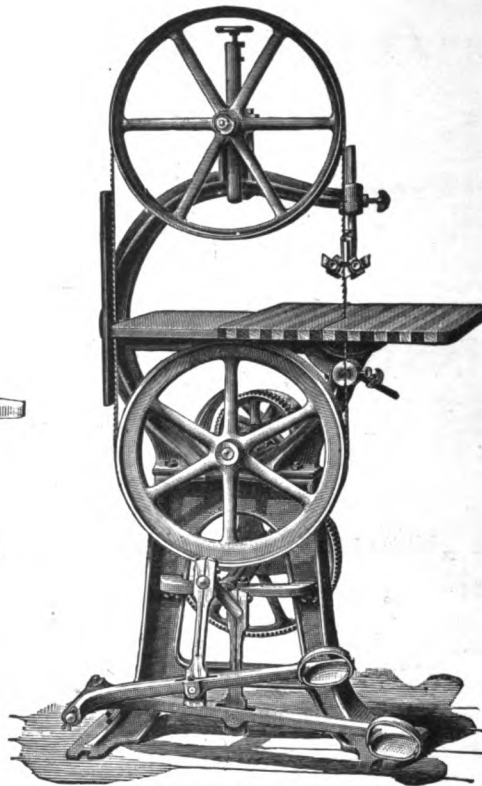


Fig. 721.
20 in. Machine. Combined Foot or Belt Power.

IN SIZES:

20 in. machine for foot or belt power.
26 in. machine for foot or belt power.
32 in. machine for belt power.
36 in. machine for belt power.

LIST PRICES,

\$50.00 to \$130.00.

Special Discount to Carriage and Wagon Makers.

These machines are symmetrical and modern in design, and absolutely rigid and strong for the heaviest work coming within the range of each machine.

Ask for 1899 12 page Circular showing all sizes.

Manufacturers also of "DOLE'S" and "SILVER'S" HUB BORING MACHINES, "DOLE & DEMING" SPOKE TENON MACHINE, "SILVER'S" and "ADVANCE" DRILLS, Etc., Etc.

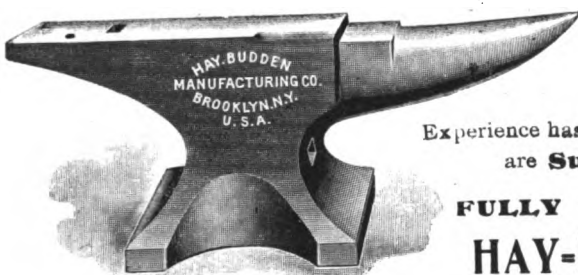
EVERY MACHINE GUARANTEED.

THE SILVER MFG. CO.

339 Broadway,
SALEM, OHIO, U. S. A.

....FIRST MADE IN AMERICA....

"HAY-BUDDEN," SOLID WROUGHT ANVILS.



MADE OF Best AMERICAN Wrought Iron.

Best AMERICAN Cast Steel.

FORGED BY Best AMERICAN Workmen.

Over 60,000 in Use.

Experience has proven their worth and demonstrated that the **Hay-Budden Anvils** are **Superior in Quality, Form and Finish** to any on the market.

FULLY WARRANTED.

SEND FOR DESCRIPTIVE CIRCULAR.

HAY-BUDDEN MFG. CO., 254-278 NORTH HENRY STREET, BROOKLYN, N. Y.

Received Gold Medal, Highest Award for Anvils, at **OMAHA EXPOSITION, 1898.**
PAN-AMERICAN, 1901.

Repair Shops, Take Notice.

THE HENDERSON HAND POWER TIRE SETTER IS A MONEY-MAKER.

Worth \$500 (only cost \$150).

Over 1000 Tires Per Month.



WRITE TO THE

STANDARD TIRE SETTER CO., Keokuk, Iowa

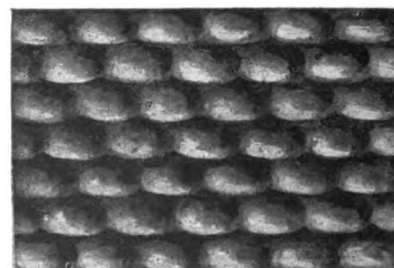
St. JOSEPH, Mo.,
July 24, 1901.

We thought we would drop you a few lines to let you know how the Tire Setter is earning its money. Not for an hour during the last month has the machine been idle. We have done over 1000 tires so far this month. Yours truly,
THE SCHENCK CARRIAGE WORKS.

BASKET WORK IN WOOD

FOR CARRIAGE BUILDERS.

In Walnut, Cherry, Oak, Ash, Maple and Mahogany.



It pays to get the best.

Looks Better

Wears Better

And is Cheaper in the end.

Write for...
Photographs

Manufactured by

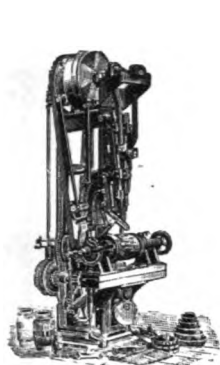
Established
in 1854 by
Ehrhard &
Hagen.

Bothner Hardwood Moulding Co.

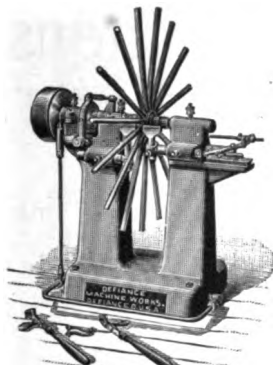
1945 PARK AVENUE, NEW YORK.

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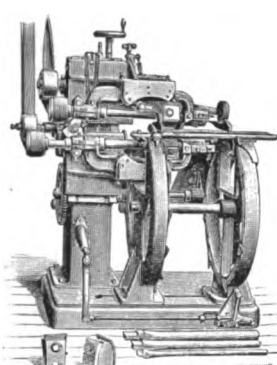
Automatic Wheel Machinery.



Automatic Hub Mortiser.



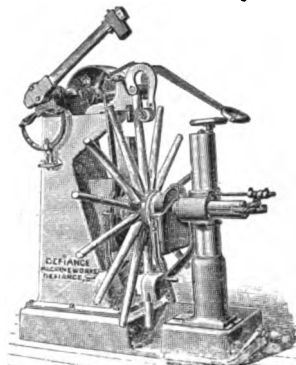
Sarven Flange Seat Facer.



Automatic Spoke Throater.



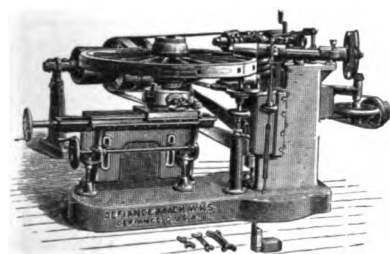
60 Ton Hydraulic Wheel Press.



No. 1 Spoke Driver.

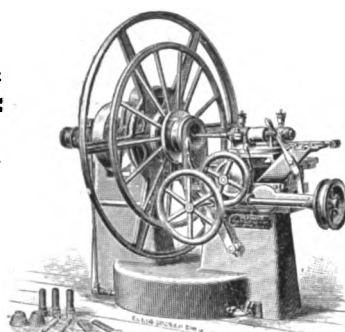
Invented and
Built by ...

The Defiance Machine Works, Defiance, O.



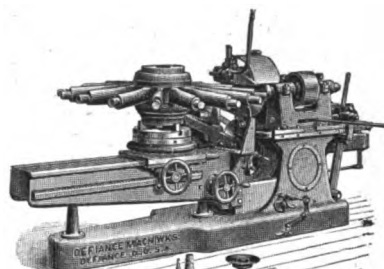
Wheel Rim Finishing Machine.

Established
1850.



Automatic Wheel Boxer.

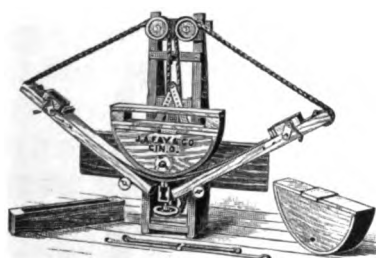
400 Page
Catalogue
Free. ...



Automatic Wheel Tenoner.

COMPLETE EQUIPMENTS FURNISHED.

CARRIAGE AND WHEEL WOOD-WORKING TOOLS



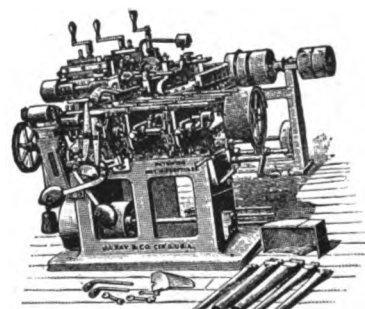
NEW WOOD BENDING MACHINE,
FOR BENDING FELLOES, WAGON STOCK, ETC.

"GRAND PRIX" AND DECORATION
LEGION OF HONOR, PARIS, 1900

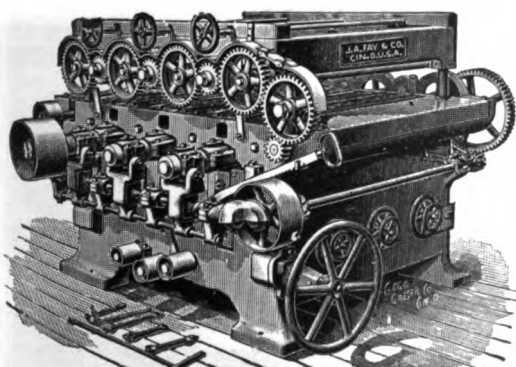
New combined 450-page catalogue, showing every
machine we make, free

Prices, Cuts
and Information
sent on
application

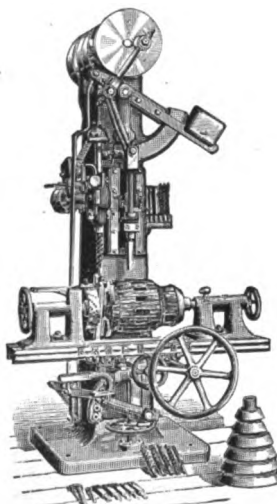
Poster
showing
these
machines
free



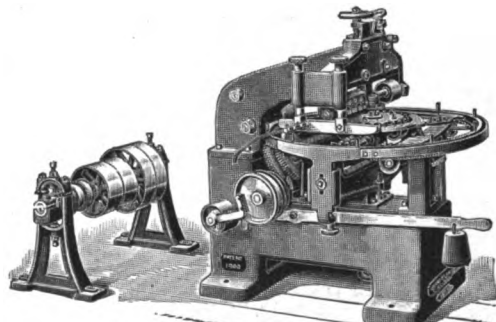
AUTOMATIC SPOKE-THROATING, TENON-
ING AND MITERING MACHINE.
SAVES 3 MACHINES.



NEW NO. 4 PATENT TRIPLE-DRUM, EIGHT-ROLL, POWER
FEED SAND PAPERING MACHINE. WORKS FROM
30 TO 80 INCHES WIDE.



NO. 5 HUB MORTISER AND BORER.
WILL MORTISE SMALLEST
BUGGY HUB TO 16 IN.
DIAMETER WAGON
HUB.



NEW NO. 51 PATENT AUTOMATIC ROTARY SPOKE FACER
(PATENTED JUNE 25, 1901). FACES 1,800
SPOKES PER HOUR.

J. A. FAY & EGAN CO.,

421-441 WEST FRONT STREET,
CINCINNATI, OHIO

Please mention "The Hub" when you write.

CHICAGO The Industrial Center.

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YOUR PROFITS

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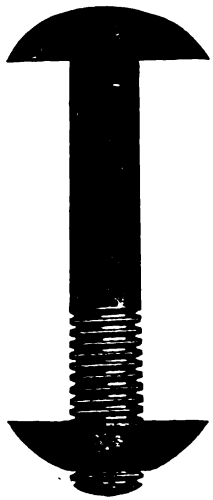
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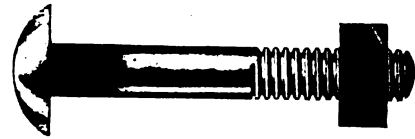
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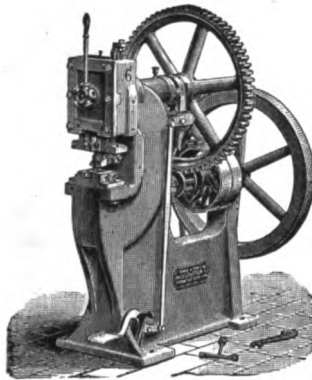
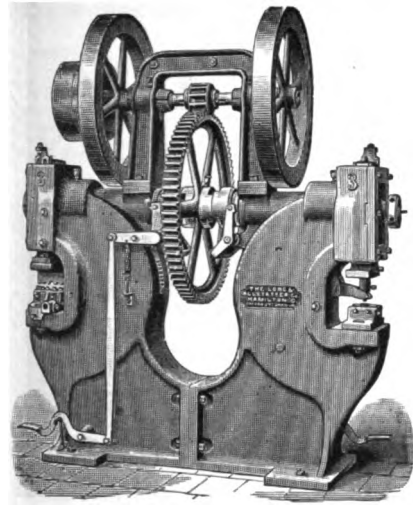
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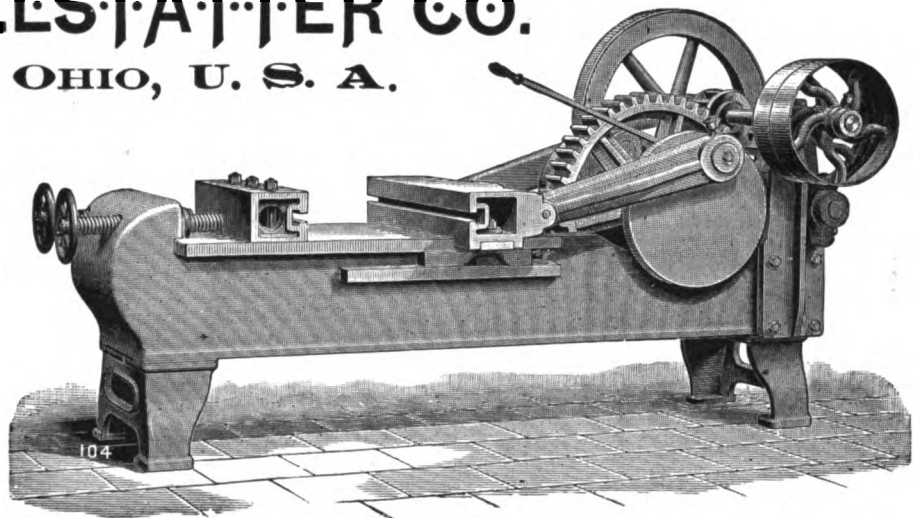
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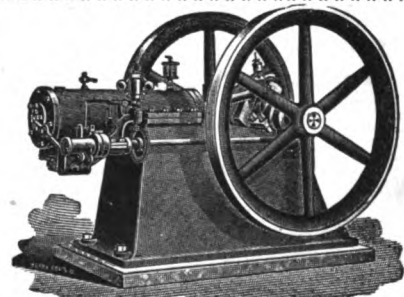


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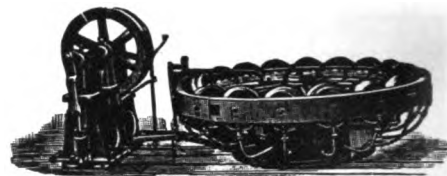
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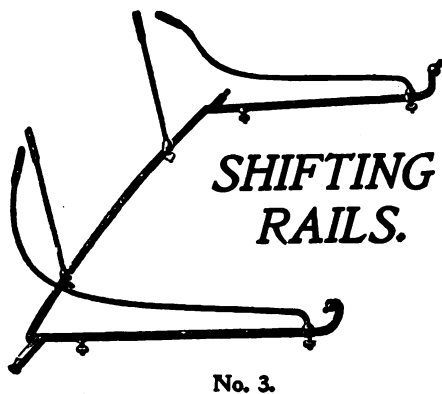
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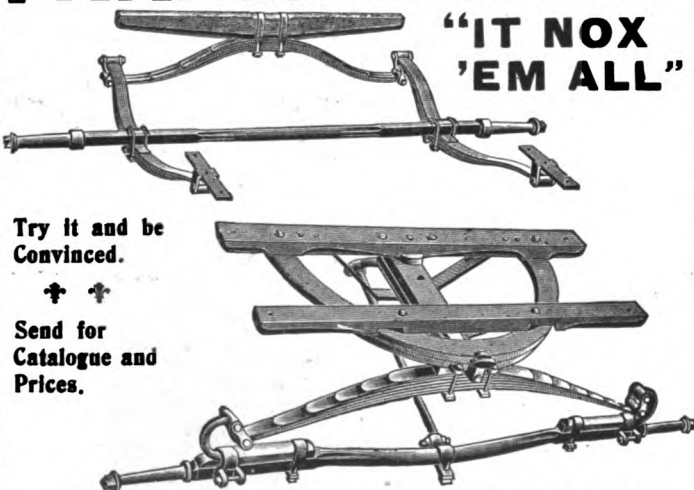
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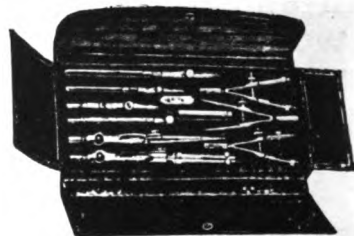
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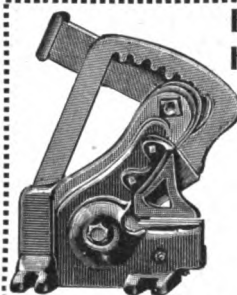
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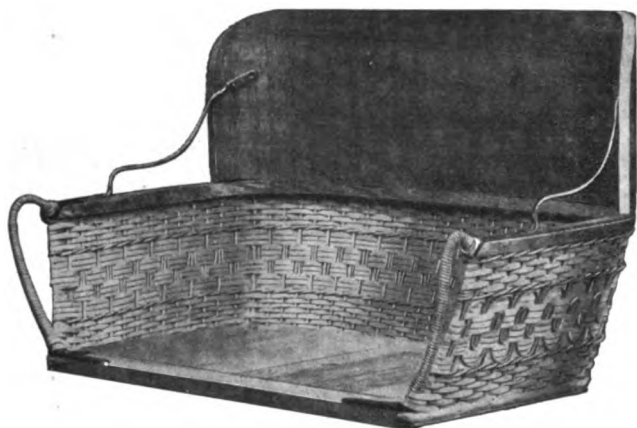
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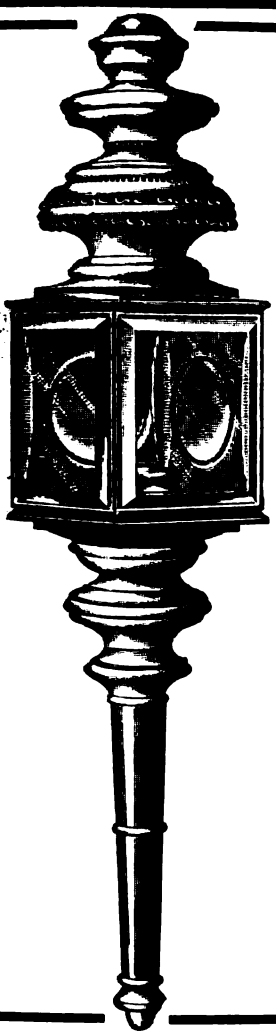
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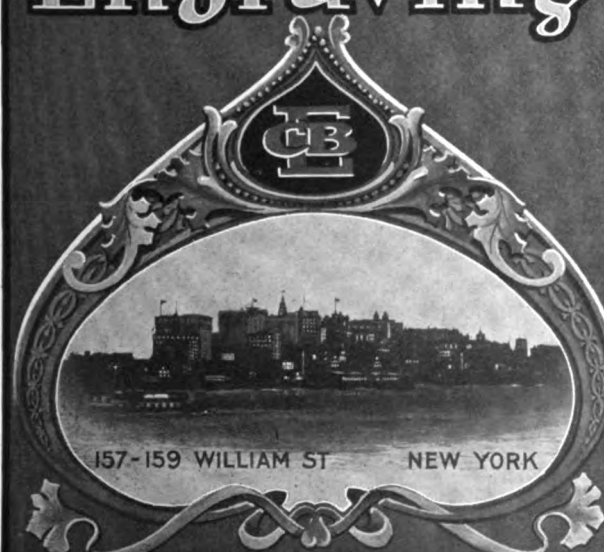
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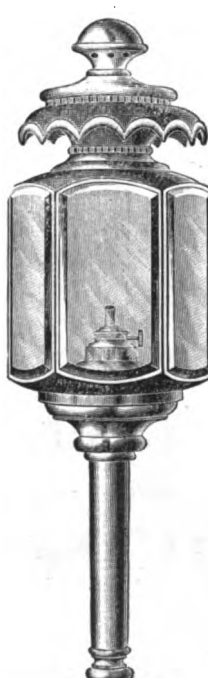
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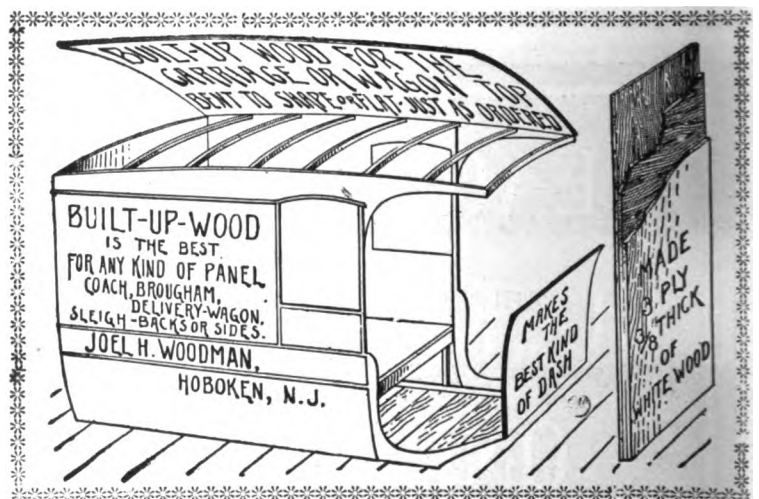


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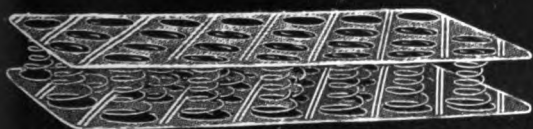
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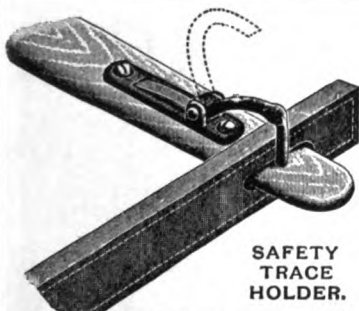
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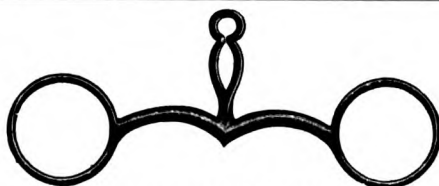
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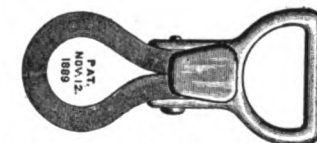
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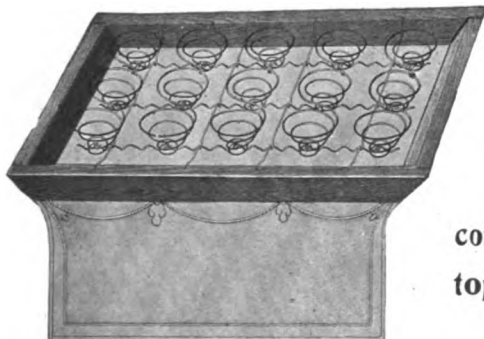
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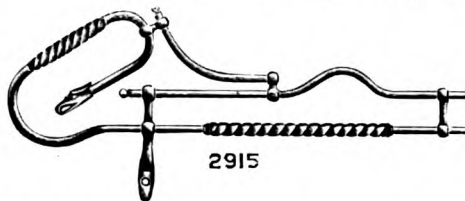
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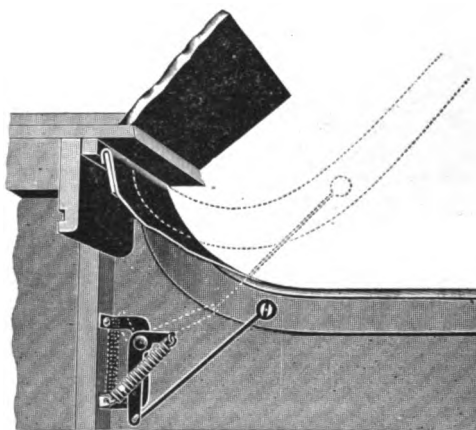
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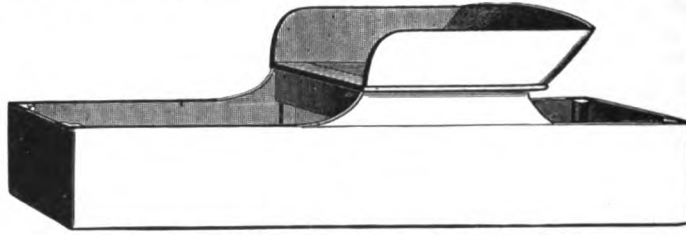
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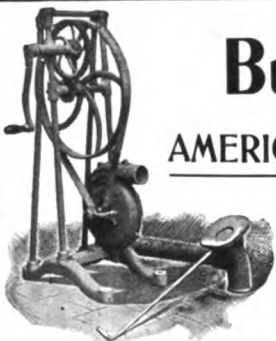
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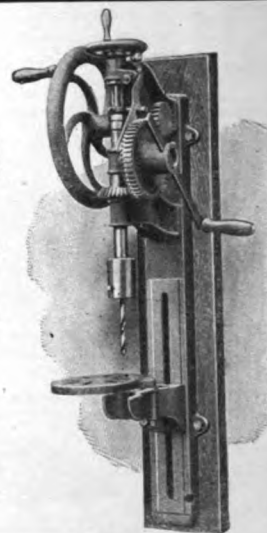
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INDEX TO ADVERTISERS.

A

Acme Supply Co.....	34
Akron Gear Co.....	45
Allentown Platform Spring Co..	—
American Roller Bearing Co....	54
American Steel & Wire Co.....	75
Armlader Co., O.....	17
Armstrong Mfg. Co., J. B.....	53
Aubry Carriage Co., Lee J.....	25
Automobile & Cycle Parts Co....	36
Avoca Wheel Co.....	—

B

Babcock Co., H. H.....	29
Bailey & Co., S. R.....	55
Bantam Mfg. Co.....	56
Barnes Co., B. F.....	70
Barnes Co., W. F. & John.....	62
Beardsley & Hubbs Mfg. Co.....	—
Bennett Mfg. Co.....	60
Berry Bros.....	78
Bicknell Hardware Co., The.....	69
Big Four Route.....	66
Blake & Co., J.....	39
Blees, McVicker Carriage Co....	18
Bothner Hardwood Moulding Co.	64
Boob, W. W.....	73
Boston Roller Chafe Iron Co....	62
Bradley & Sons, C. C.....	58
Bridgeport Coach Lace Co.....	76
Brighton Buggy Co.....	17
Bringardner & Conkle.....	47
Brown-Lipe Gear Co.....	34
Buffalo Forge Co.....	78
Buffalo Spring & Gear Co.....	26, 27
Buhne Steel Wool Co.....	3

C

Cannon Metal Wheel Works.....	49
Caulfield, John.....	52
Central Bureau of Eng.....	71
Chamber Bros. Co.....	62
Chicago Automobile Show.....	72
Chicago, Milwaukee & St. Paul	
R. R.....	42
Cincinnati Panel Co.....	44
Clapp Mfg. Co., E. D.....	—
Cleveland Bag Factory.....	73
Cleveland Axle Mfg. Co.....	30
Cleveland-Canton Spring Co....	—
Cole Co., G. W.....	—
Columbia Wagon Works.....	28
Columbus Bolt Works.....	67
Columbus Machine Co.....	67
Consolidated Rubber Tire Co....	7
Cooper Bros.....	70
Cooper Co., J. A. & D. P.....	59
Cortland Forging Co.....	68
Covert Saddlery Works.....	—
Cowles & Co., C.....	56
Crandal, Stone & Co.....	49
Crane & MacMahon.....	49
Crest Mfg. Co.....	34

D

Dalzell Axle Co.....	51
Decatur Buggy Co.....	18
Defiance Machine Works.....	65
Derby & Co., W. E.....	—
Detroit Spring & Steel Co.....	1
Devoe, F. W., & Reynolds Co.,	
C. T.....	2d cover
Dewes & Whiting.....	—
Dickinson Bros.....	39
Dusenbury, E. Coles.....	80
Doucette Carriage Co., M. A....	44

E

Eastman Metallic Body Co., The.	48
Eberly & Orris.....	48
Eccles Co., Richard.....	61
Egan Co., The.....	65
English & Mersick Co.....	—
Erie Railroad Co.....	66
Excelsior Carriage Co.....	22

F

Fancher Mch. Co., The.....	—
Fay & Co., J. A.....	65
Felton, Sibley & Co.....	2
Firestone Tire & Rubber Co....	6
Fitch Gear Co.....	43
Forsberg Spring & Gear Co.....	51
Fowler Elastic Enamel Paint Co.	—
Frantz Body Mfg. Co.....	44

G

G & J Tire Co.....	35
Galion Wagon & Gear Co.....	—
Gerhab, Jacob.....	76
Gidden Varnish Co., The.....	79
Goodyear Tire & Rubber Co....	3d cover
Grand Rapids Engraving Co....	2
Grant Axle & Wheel Co.....	—
Groton Carriage Works.....	31

H

Hagerstown Spoke & Bending Co.	48
Halliday, C. A.....	74
Harland & Son, Wm.....	2d cover
Hartford Axle Works.....	50
Hartford Rubber Wks. Co., The.	10
Hay-Budden Mfg. Co.....	64
Higgin Mfg. Co.....	—
Hildreth Varnish Co.....	4th cover
Hoopes Bro. & Darlington.....	47
Horton, H. A.....	—
Hutton & Co., G. H.....	44

I

Ideal Mfg. Co.....	56
Illinois Central Railroad.....	42
Industrial Locations.....	66
India Rubber Co.....	14
Initial Toe Pad Co.....	74
International Motor Car Co....	33, 35

J

Jackson Cushion Spring Co.....	76
Jones & Co., Phineas.....	38
Jube & Co., John P.....	76

K

Keator & Wells.....	32
Keuffel & Esser Co.....	68
Keystone Carriage Co.....	16
Keystone Paint & Filter Co....	2
Kimble, Andrew.....	—
Kimbark, S. D.....	78
King & Cook.....	77
King Spring Co.....	36
Kokomo Rubber Co.....	15
Kramer, W. F.....	68

L

Landers Bros. Co.....	76
Lauder, Harter & Harsh Mfg.	
Co.....	75
Lowell Model Co.....	34
Lounsbery & Sons, G H.....	46
Long & Allstatter Co.....	67
Liggett Spring & Axle Co.....	59
Lee & Porter.....	50

M

McCormick, Edward H.....	76
McKinnon Dash Co.....	4th cover
Masury & Son, John W.....	4
Mecker Mfg. Co.....	—
Metal Stamping Co.....	—
Meyer & Co., John C.....	39
Meyercoed Co.....	39
Miller Bros.....	29
Mitchell Co., P. R.....	73
Mobile Co., of America.....	9, 35
Morse Twist Drill & Machine Co.	69
Mulholland Spring & Gear Co....	—
Muncie Wheel & Jobbing Co....	54
Murphy Varnish Co.....	37

N

National Mercantile Agency.....	77
National Vehicle Co.....	22
Nicholson & Co.....	39
Neustadt, Perry Co.....	—
New Jersey Car Spring & Rub-	
ber Co.....	73
New York Belting & Packing Co.	—
Non-Corrosive Metal Co.....	56

O

Olds Motor Works.....	33
-----------------------	----

P

Palm, Fechteler Co.....	3
Pantastote Co.....	73
Parrott Varnish Co.....	2d cover
Perry Mfg. Co.....	19
Pennsylvania Rubber Co.....	—
Peters & Herron Dash Co., The	
4th cover	—
Pomeroy & Fisher.....	—
Pontiac Buggy Co.....	28
Porter H. K.....	69
Potter, Morgan.....	48

R

Raritan Woolen Mills.....	76
Rattan Novelty Co., The.....	70
Raymond Mfg. Co.....	—
Reading Automobile & Gear Co..	34
Revere Rubber Co.....	—
Rex Buggy Co.....	—
Richland Vehicle Co.....	23
Rohde & Haskins.....	5
Rouse & Co., J. G.....	62
Rowland, Wm. & Harvey.....	2d cover
Russell, Burdsall & Ward Bolt &	
Nut Co.....	67, 69
Russell & Erwin Mfg. Co.....	69

S

Saul, John A.....	73
Schmid, F. J.....	74
Schubert Bros. Gear Co.....	43
Scranton & Co., The.....	69
Seinsheimer Paper Co.....	—
Selle Gear Co.....	45
Seward & Son Co., M.....	39
Shaeffer, Bunce & Co.....	—
Sheldon Axle Co.....	54
Sherwin-Williams Co.....	1
Shortsville Wheel Co.....	—
Shuler, W. S., & Thomas Sp. Co.	8
Silver Mfg. Co.....	64
Smith & Co., Edward.....	4th cover
Smith & Co., Joseph N.....	77
Somerset Mfg. Co.....	76
Southern Rubber Tire Co.....	9
Sovereign, C. E.....	73
Sprague Axle Co.....	50
Sprague Umbrella Co., The.....	77
Spring Perch Co.....	61
Standard Anti-Friction Equip-	
ment Co.....	12, 13
Standard Tire Setter Co.....	64
Standard Tool Co.....	5
Standard Varnish Works.....	3
Staples & Hanford.....	69
Staver Carriage Co.....	—
Stearns Steam Carriage Co.....	—
Stephan & Son, J. H.....	48
Stevens & Sackett Co.....	71
Sterling Buggy Co.....	24
Stinson & Co., E.....	47
Stow Mfg. Co.....	60
Suwanee Spoke & Lumber Co....	74

T

Thompson, F. H.....	75
Timken Roller Bearing Axle Co..	63
Tire Setting Machine Co.....	62
Tuthill Spring Co.....	50

U

U. S. Sanitary Co.....	—
------------------------	---

V

Valentine & Company.....	4
Victor Rubber Tire Co.....	11

W

Walter, N. C., & Sons.....	34
Wapakoneta Wheel Co.....	—
Waterloo Wagon Co.....	20, 21
Watertown Carriage Co.....	—
Welding Compound Co., The....	60
Weston & Co., I. A.....	54
Weston-Mott Co.....	—
West Tire Setter Co.....	68
Weyburn & Briggs Co.....	62
Wheel & Wood Bending Co....	48
White Mfg. Co.....	71
Wilcox Mfg. Co., D.....	57
Willey, C. A.....	2d cover
Williams, Max.....	33
Wilmot & Hobbs Mfg. Co.....	5
Woodman, Joel H.....	74

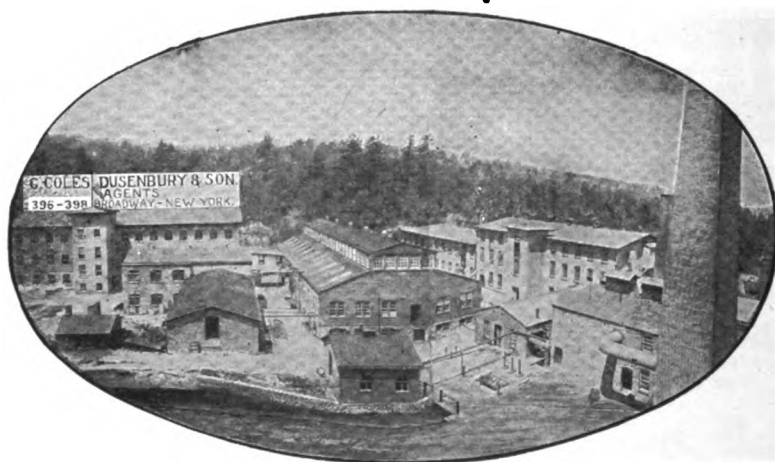
Z

Zacher & Co., C. P.....	42
Zwick & Greenwald Wheel Co....	—

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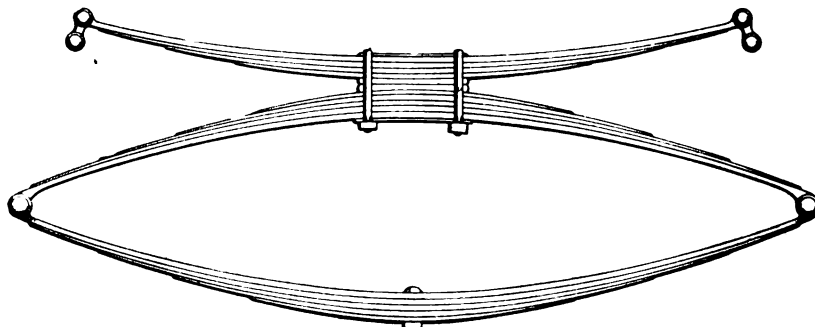
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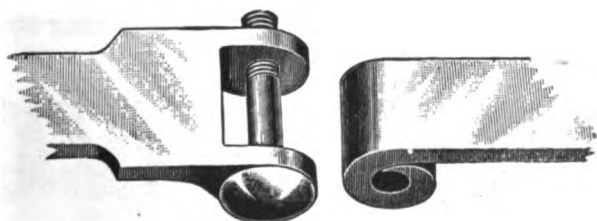
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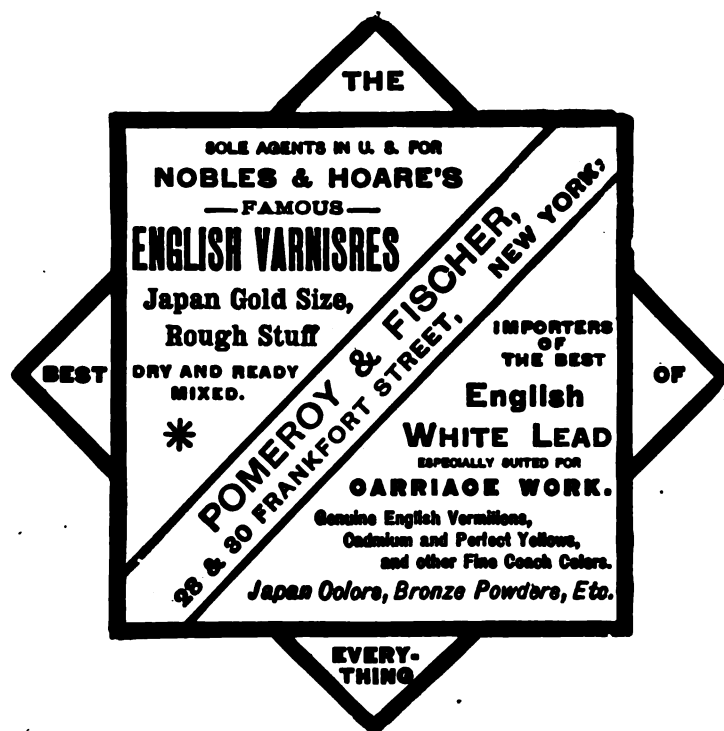
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PARIS,
21 Rue de Lapp

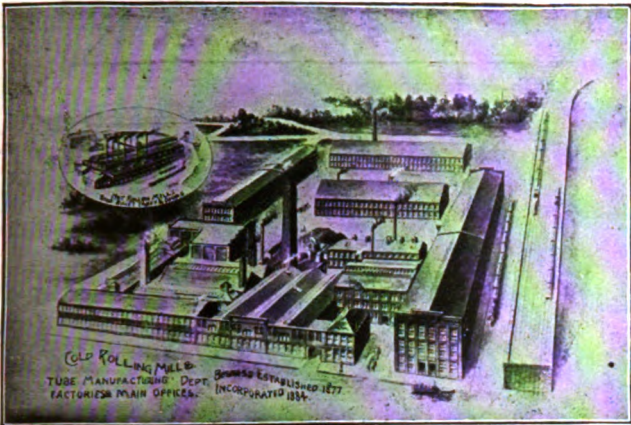
FACTORIES :

NEW YORK. CHICAGO.

ESTABLISHED

1832.

Please mention "The Hub" when you write.



When it comes to

Spring Steel Rims

For Automobiles,
Motor Cycles and
Bicycles

We are not Novices.

We are the most experienced and thoroughly
equipped House in the Trade.

And we make our own Steel so we KNOW what
goes into our Rims.

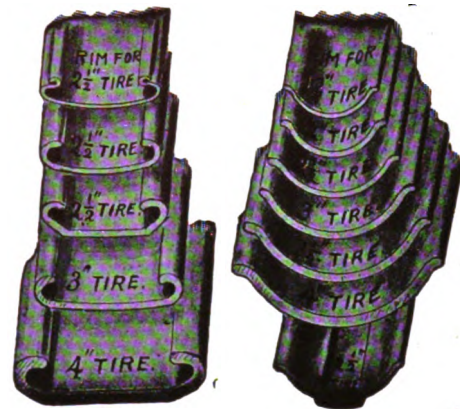
The American Tube & Stamping Co.

SUCCESSOR TO

THE WILMOT & HOBBS MFG. CO.

MAIN OFFICE: BRIDGEPORT, CONN.

NEW YORK OFFICE, 258 BROADWAY.



International "Endurance" Pneumatic Tire

Nothing but the BEST
will do for Car-
riages or Auto-
mobiles.

HERE IT IS.

Use "Fox Brand"
Pneumatics for
light weight
tires. They are
the BEST.



**International
A. & V. Tire Co.**

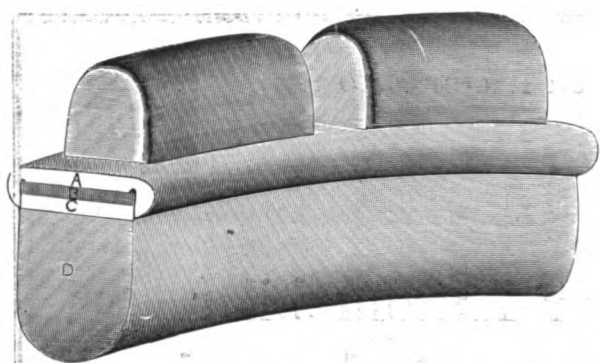
NEWTON UPPER FALLS, MASS.

NEW YORK, 346 Broadway.

CHICAGO, 435 Wabash Ave.

We manufacture all sizes Solid Rubber Tires, either
the Kelly two wire or the flat band style.

The Hub

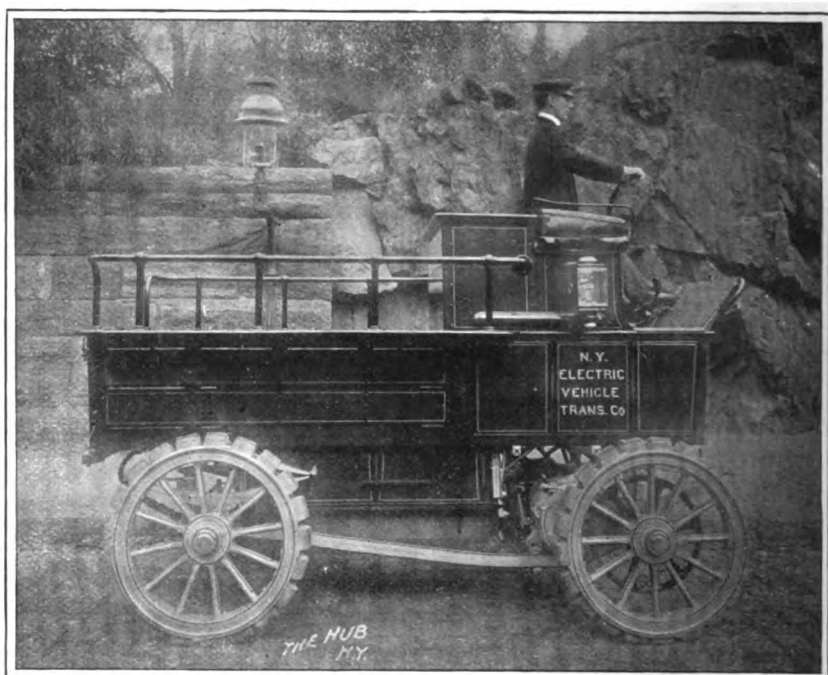


The Hall Sectional TIRE

Furnished in 3, 4, 5, 6, 7 and 8 in. sizes

A tire which, by actual test, has shown satisfactory mileage and wear

FOR
HEAVY
AUTOMOBILES
and TRUCKS



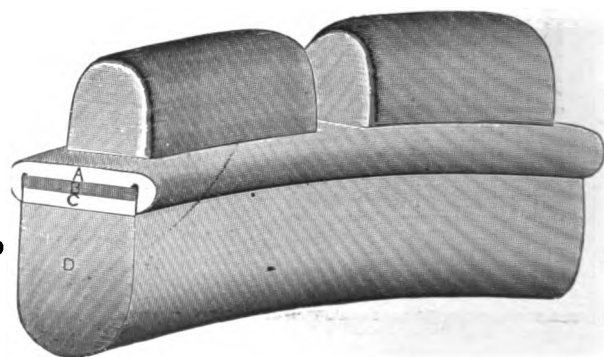
A tire that can be quickly and permanently repaired at small expense. The only tire fully guaranteed for HARD service.

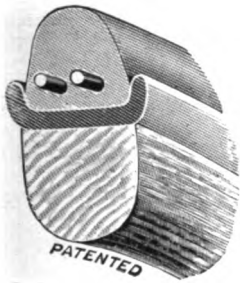
Manufactured by

**Consolidated
Rubber Tire Co.**

40 Wall Street, NEW YORK
and AKRON, OHIO

Please mention "The Hub" when you write.





Your product into the high-grade ranks.

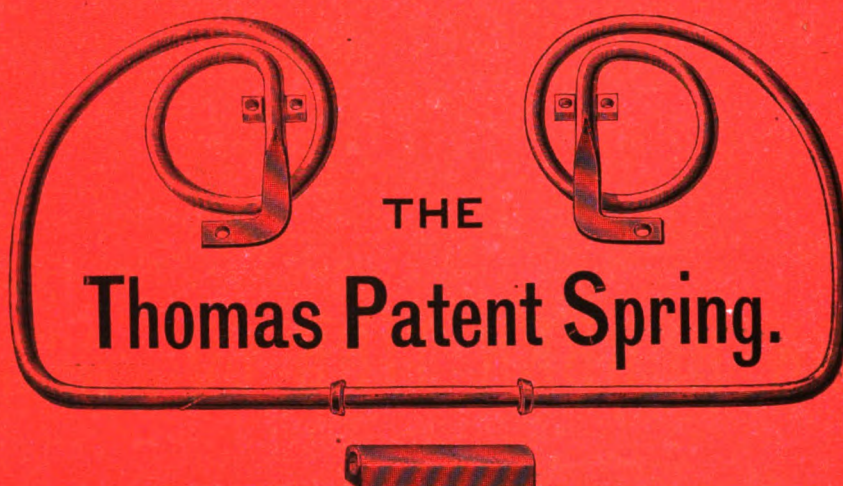
It is a mark of merit—the modern equipment for vehicles of quality.

Consolidated Rubber Tire Co.,

New York and Akron, Ohio.

W.S. SHULER & THOMAS SPRING CO.

**It's Out of Sight!
You Cannot Break It!**



THE
Thomas Patent Spring.



We desire to inform the builders and users of vehicles that the Thomas Patent Spring is adapted for Buggies, Surreys, Bike Wagons, Buckboards and Slat Bottom Road Wagons.

For wagons used in rough and hilly sections it fills a long felt want. Is an easy rider with either light or heavy loads. Is absolutely non-breakable and is lighter than any other vehicle spring.

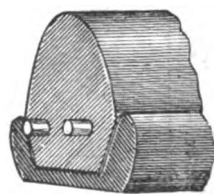
A pair of Buggy Springs complete weigh 15 lbs., Surrey 22 lbs. Simple to attach and without strain. Allows a short turn, and improves the appearance of the vehicle fifty per cent or more. We would like to furnish you with full particulars if you will but make the request.

**W. S. SHULER & THOMAS SPRING CO.,
AMSTERDAM, N. Y., U. S. A.**

AMSTERDAM, N.Y.

THE PATENT "INTERLOCKING RUBBER TIRE."

This tire is of entirely new design, and has superior advantages over the Old Style of tire, as will readily be seen by comparing the accompanying cuts. It is made of the very best selected stock. It exposes more wearing surface; and when applied in accordance with the simple directions sent to each consumer, will neither creep nor "jump" off the wheel. Any one who has ever



The "Old Style" Rubber Tire.

The "Interlocking" Rubber Tire.

put a rubber tire on, or a novice at the work, can understand it.

Therefore, on account of its fine selected stock, and increased wearing capacity, it is cheaper. It is now being made, and will shortly be ready for the Spring trade. Give it a trial and you will always want it. SEND FOR BOOKLET to

SOUTHERN RUBBER TIRE CO., Knoxville, Tenn.
Bloomfield, N. J.

SWEET { **Hub Wheels**
—MAKE FINEST—
Bike Wheels

Made with Twelve Spokes...
3½ Diameter Hubs or Larger

CAN FURNISH THEM FITTED WITH

Crescent
Flat Base
V-Shaped

CHANNELS

Write for Prices and order Sample Set.

SHORTSVILLE WHEEL CO.,
SHORTSVILLE, N. Y.

THE
St. Paul Road.
(Chicago, Milwaukee & St. Paul Ry.)

**ELECTRIC-LIGHTED
TRAINS**

DAILY BETWEEN

Chicago
Des Moines
Sioux City
Omaha

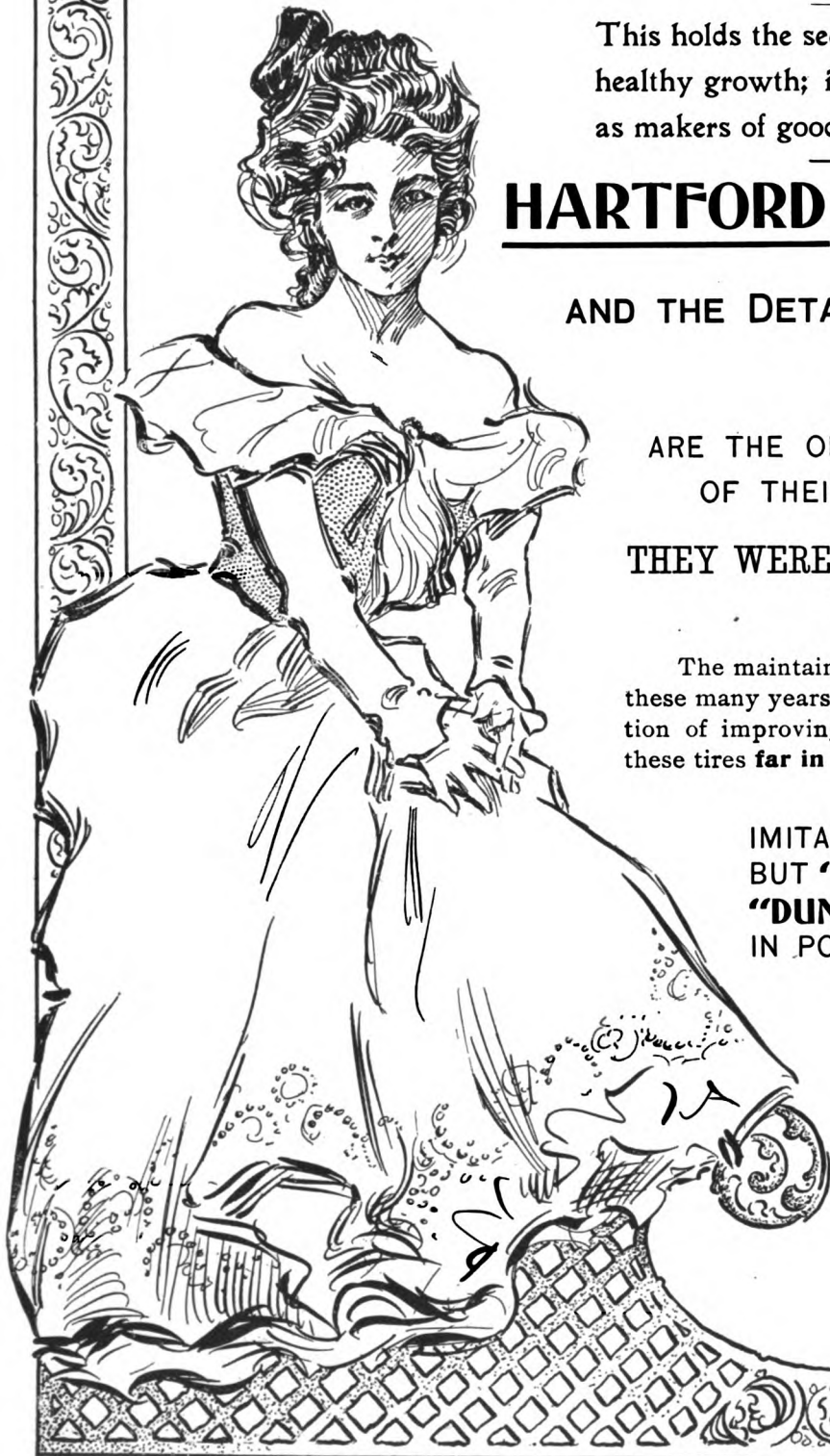
All Coupon Ticket Agents sell tickets via
Chicago, Milwaukee & St. Paul Ry.

F. A. MILLER, General Passenger Agent.
CHICAGO, ILL.

"OUR ADMIRATION IS GENERALLY GIVEN - NOT TO THE MAN

who does what nobody else attempts to do, but to that man
who does BEST what multitudes do well." *Macauley.*

This holds the secret of our continuous and
healthy growth; it accounts for our prestige
as makers of good tires.



HARTFORD SINGLE TUBE AND THE DETACHABLE **TIRES** **DUNLOP TIRES**

ARE THE ORIGINAL PNEUMATIC TIRES
OF THEIR RESPECTIVE TYPES.

THEY WERE BEST YEARS AGO,
THEY ARE BETTER TO-DAY.

The maintaining of their high quality throughout
these many years, and our unceasing efforts in the direc-
tion of improving them wherever possible, has placed
these tires **far in the lead of all** competitors.

IMITATIONS MAY COME AND GO,
BUT "**HARTFORD'S**" and
"**DUNLOP'S**" LIVE ON FOREVER
IN POPULAR FAVOR.

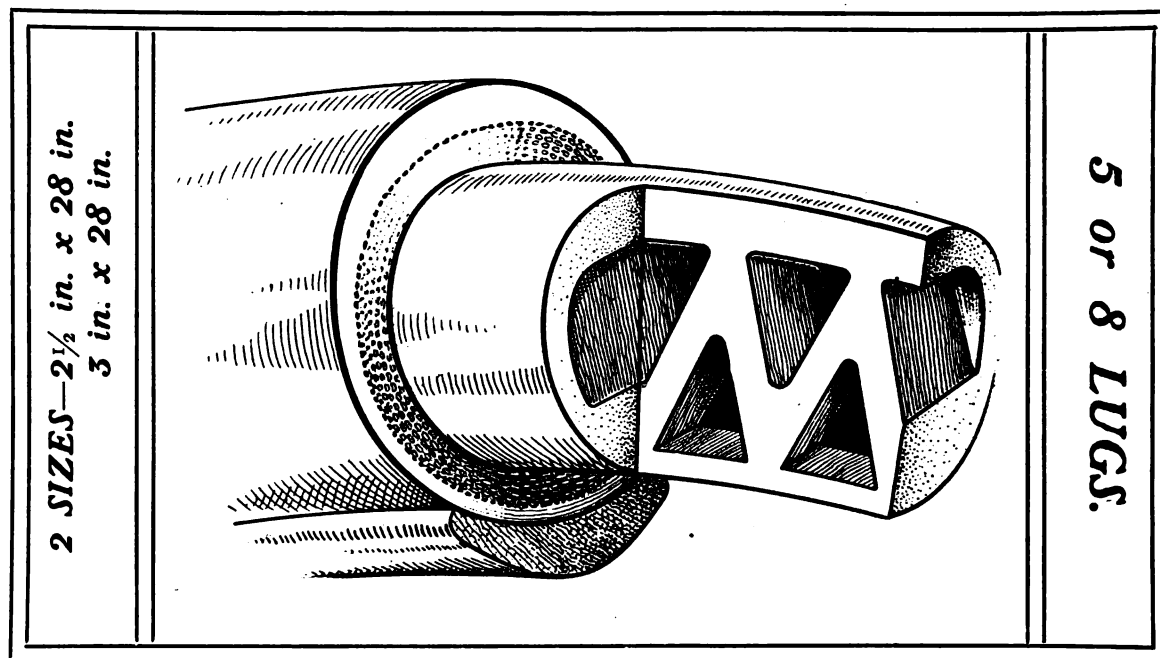
**QUALITY TELLS
IN THE LONG RUN.**

Manufactured by

**THE HARTFORD
RUBBER WORKS
COMPANY,**

HARTFORD, CONN., U. S. A.





Beasley Elastic Tires

TRUSS-CONSTRUCTION.

A perfectly successful resilient tire for all purposes.

Beasley Tires are nearly as resilient as Pneumatic Tires and cannot be disabled by punctures.

They will render perfect service until the tread is completely worn out, and at all times insure certainty of transportation.

They will eliminate the expense, and that which is of more importance to the consumer, the annoyance of repairs incident to all Pneumatic Tires, and will wear three times as long.

The Beasley Elastic Tire is constructed on the principle of a truss bridge and therefore is

The Beasley Elastic Tire is constructed on the principle of a truss bridge and therefore is the elastic section.

This Tire possesses advantages over the Pneumatic and Solid Tires that will quickly present themselves to users of Rubber Tires. The Solid Tire that will wear is neither resilient nor elastic, and cannot be made to meet either of these essential features without sacrificing wearing qualities.

The pneumatic is the only Tire possessing perfect resilient qualities, but its susceptibility to puncture makes it a very uncertain and dangerous quantity in use, especially on horseless vehicles.

The most important features of the Beasley Elastic Tire are its resilient qualities and the absolute certainty of transportation which it secures to its users. This Tire may, and doubtless will be, punctured, but nothing short of its total destruction will disable it so that it cannot be used for safe transit.

Prices on application.

Standard Anti-Friction Equipment Co.

50 Broadway, New York, U. S. A.

Remember!

while there are now being made many CLAIMS for various kinds of tires, both thin-walled and imitations of our pattern of construction, there is still but one thick-walled pneumatic that has been TRIED for years in public service and PROVEN to be absolutely reliable under all conditions.

THE "LONG DISTANCE" TIRE.

ON TIME TO THE MINUTE



Specified for 1902 by the leading carriage manufacturers. Recommended by the up-to-date dealer, Preferred by the sensible rider.

If you wish a Tire that you can stand behind the same as the carriage itself. This is in the "Long Distance."

THE ORIGINAL THICK-WALLED PNEUMATIC.

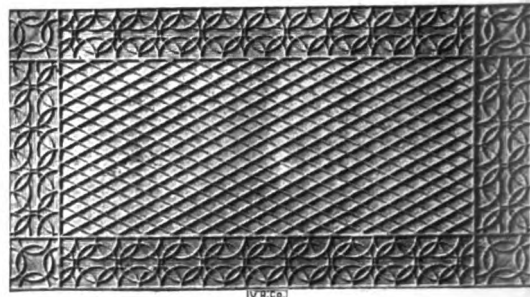
New York Belting and Packing Co., Ltd.,
25 PARK PLACE, N. Y. CITY.

STORES:

NEW YORK, 25 Park Place.
BOSTON, 24 Summer St.
PHILADELPHIA, 724 Chestnut St.
BALTIMORE, 101 Hopkins Place.
CHICAGO, 130 Lake St.
INDIANAPOLIS, 220 S. Meridian St.
ST. LOUIS, 411 N. Third St.
SAN FRANCISCO, 509-511 Market St.



Perforated Rubber Mats



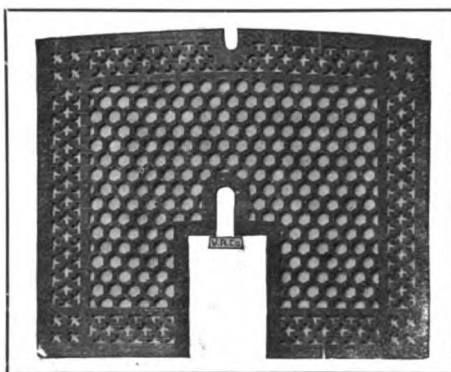
Pressed Rubber Mats and Rubber Matting

in the most artistic and attractive designs, and in a variety of genteel colors for

AUTOMOBILES

CARRIAGES, OFFICES, RESIDENCES, &c.

Individual names can appear on the perforated mats, which can be made to pattern.



Quality and Style characterize our goods. Write us, describing what you want.

THE VICTOR SOLID RUBBER TIRES

wear much longer than any others.



The Victor Rubber Co.

SPRINGFIELD, OHIO.

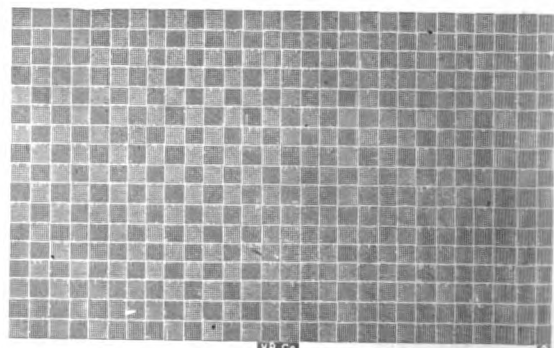


Branches:

BOSTON:
27-29 Beverly St.

NEW YORK:
1769 Broadway.

CHICAGO:
1428 Wabash Ave.



Please mention "The Hub" when you write.

The Hub

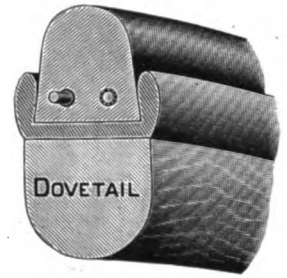
15



Pat. July 23, 1895.

THE NUMBER OF

Victor Rubber Tires



Patented.

replaced during the season of 1900-1 represented only 17/100 of 1% of the total number manufactured during the same period. This unparalleled record—one that has not been even approached by any other tire—fully confirms and justifies the candid conclusion of buyers and users that

VICTOR TIRES ARE :::: THE BEST ON EARTH.

A common saying among our competitors is "Once a customer of the Victor, always a customer of the Victor." This is a true declaration. Our old licensees generally are renewing their engagements with us, and about 25% of our contracts for the ensuing season are with new customers—good people who last year handled tires of inferior grades and who propose to profit by experience.

Our shipments to customers during the months of November and December, 1901, were over 50% in excess of those during the same months of 1900. Cause: best tires; quickest, simplest and surest device for applying them; reasonable prices; punctual service and fair treatment.

VICTOR TIRES DO NOT INFRINGE ANY PATENT,
and we will protect our customers from litigation for alleged infringement

You will observe that this ad. is characterized not by ambiguous verbiage, but by frank, honest statements; cold, stern facts.

Moral: Get into the band wagon that has VICTOR TIRES on.

The Victor Rubber Tire Co.,

SPRINGFIELD, OHIO.



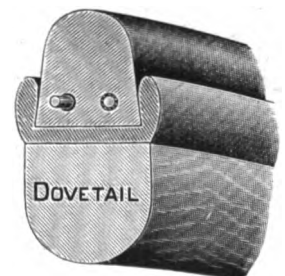
Pat. July 23, 1895.

BRANCHES:

1769 Broadway, New York City.

27-29 Beverly St., Boston, Mass.

1428 Wabash Ave., Chicago, Ill.



Patented.

Please mention "The Hub" when you write.

Sectional Pneumatic Tires

"Bingo" Sectional Double Tube Tires

THE INNER TUBES ARE EASILY REMOVED FOR REPAIRS



CARRIAGE TIRES

(FOR LIGHT PLEASURE VEHICLES.) MADE IN ALL SIZES AND WEIGHTS.

Each section is complete in itself. In case of accident an entire section can be removed with a screw driver.

The sectional formation improves the speed, prevents slipping, and removes dread of puncture.



MANUFACTURED BY

Sectional Pneumatic Tire Co.

BINGHAMTON, N. Y.

Please mention "The Hub" when you write.

Sectional Pneumatic Tires

Aluminum Clips

EACH CLIP FITS INTO THE CLIPS NEXT TO IT, STRENGTHENING THE WHEEL



AUTOMOBILE TIRES

(FOR LIGHT STEAM AND GASOLINE USE.) MADE IN ALL SIZES AND WEIGHTS.

These tires are securely locked and sections will not tear off or pull out.

Can be ridden softer than any other pneumatic tire as the air cannot escape from under the load.



MANUFACTURED BY

Sectional Pneumatic Tire Co.

BINGHAMTON, N. Y.

Please mention "The Hub" when you write.



INDIA RUBBER TIRES




WE have reached the acme of perfection in making solid, cushion and pneumatic carriage and automobile tires. Our many customers attest to this and fully appreciate its importance.

We have the quality and the price is right for high grade goods.

We were one of the first rubber concerns in the country to manufacture carriage tires. Why not profit by our experience.

Your correspondence is solicited.

THE INDIA RUBBER CO.

AKRON, OHIO.

KOKOMO

TIRES

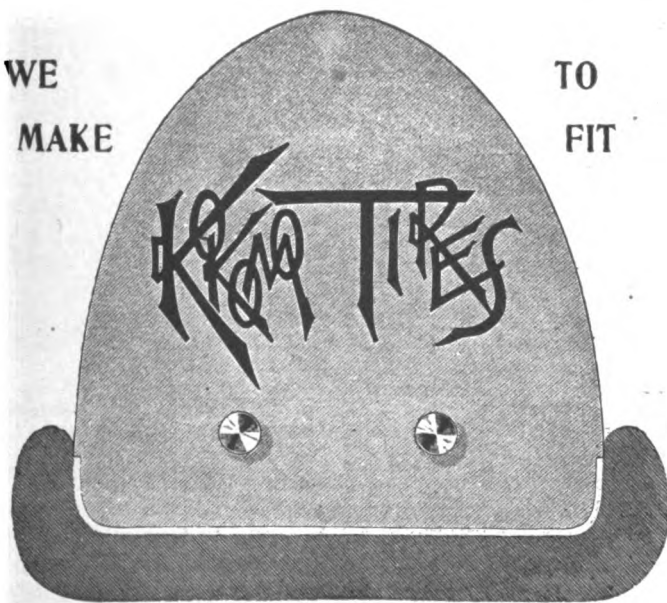
ONE QUALITY ONLY

• AND •

THAT THE BEST

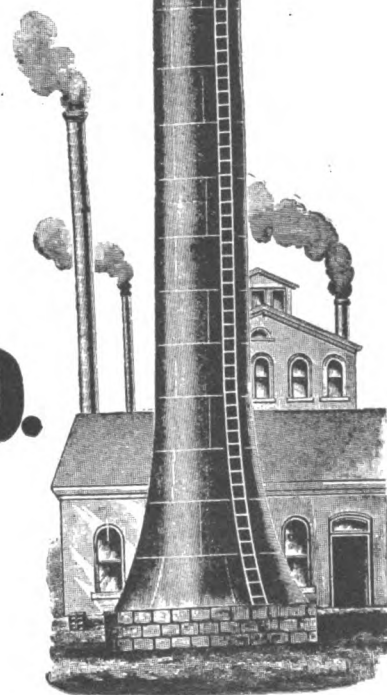
WE
MAKE

TO
FIT

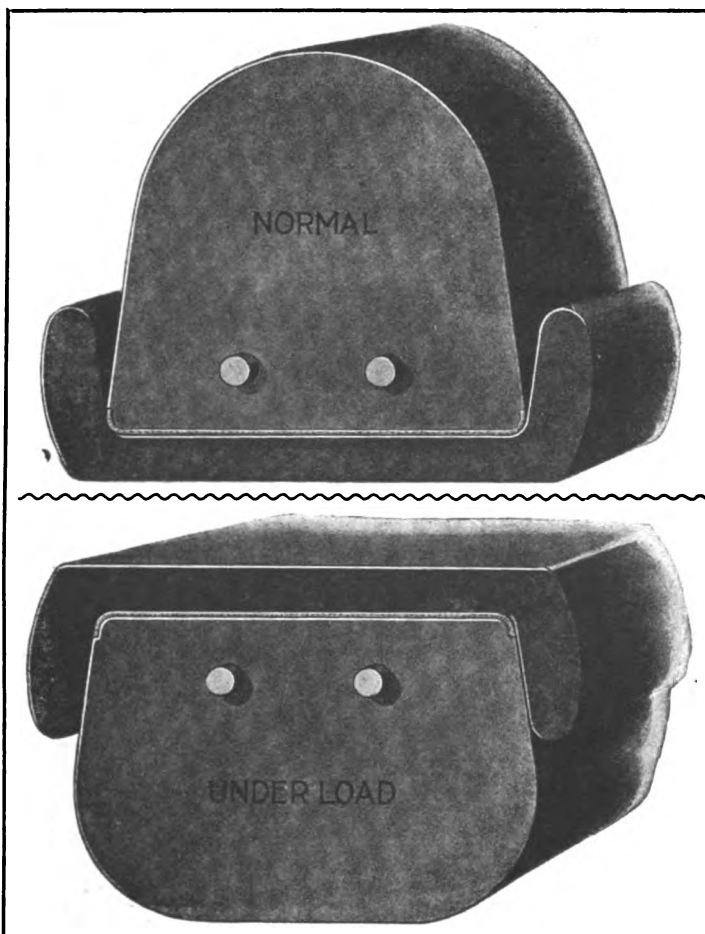


KOKOMORUBBERCO.

KOKOMO, INDIANA.



Please mention "The Hub" when you write.



Carriage and... Automobile Trade

FURNISHED —

RUBBER, CHANNELS, WIRE

AND TOOLS FOR APPLYING.

SIZES: 3-4 IN. to 3 IN.

—
This Tire Fits Into the Standard Channel.
—

REVERE RUBBER CO.,

BOSTON.

NEW YORK.

CHICAGO.

American Harness and Saddlery Directory EIGHTH YEAR.

A MERICAN HARNESS AND SADDLERY DIRECTORY FOR 1902 contains many valuable features and is an up-to-date twentieth century publication. This directory has **always** been the **standard**, and every edition has been an advance in accuracy and usefulness over the preceding issue.

The 1902 edition has an **arrangement** of the **wholesale** and **jobbing** trade that makes it very convenient for those who wish to separate *association jobbers* from those not at present so recognized.

A **new part** has been added that will be found a very serviceable list of **dealers in harness**, as distinguished from *retail harness* manufacturers. To many who solicit the vehicle, implement and hardware trade, as well as department stores, this will prove of great convenience. These trades are handling harness and horse goods in increasing volume yearly, and such a list is a distinct advantage to the trade.

The Buyer's Guide (Part III. of the Directory) has always been a valuable feature. This is an alphabetical classification of all the many and various articles made to sell to the trade from Axle Grease, under "A," down to and including Wool Saddle Linings under "W." and the names and addresses of those making the various articles.

As the export trade is now inviting attention, a list of exporters of saddlery is also published.

The body and the bulk of the Directory is of course, made up of the **retail harness makers of the country**. They are conveniently arranged under State, Town and County, in the larger cities giving the street number of the occupant's place of business. Those whose rating (approximate) is over \$1,000, are marked so as to be easily distinguished.

Price \$2.00, postage prepaid.

Trade News Publishing Company,

24-26 MURRAY STREET, NEW YORK.

Firestone Side-Wire Tire

THE ONLY PRACTICAL SOLID TIRE FOR

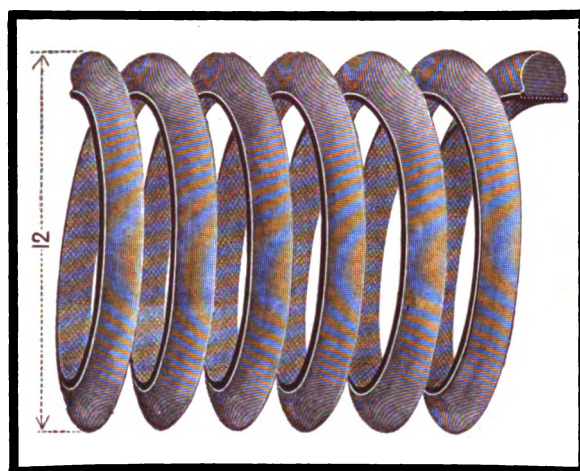
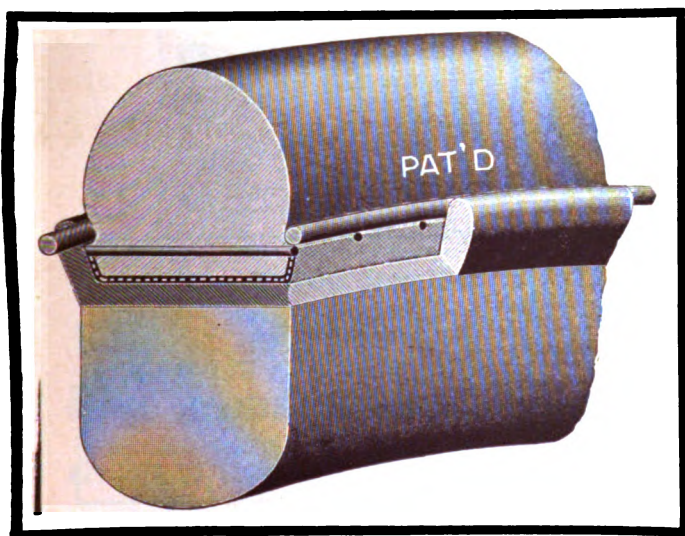
AUTOMOBILES AND HEAVY VEHICLES

A tire mechanically constructed to withstand the severe strain on propelling wheels without cutting out at the base or becoming loose. Increasing the life of the tire from fifty to one hundred per cent. above all other tires.

Made from exceptionally high grade rubber, insuring great resiliency, it is a desirable tire for light automobiles with delicate mechanism as well as for the heavier machines where endurance is the great requisite.

The above are not idle claims but facts substantiated by the largest Automobile and Livery Companies.

Study carefully the construction as shown in accompanying cuts and note particularly the following points.



No cavities through the rubber to cut out and destroy the tire before the wearing surface is damaged.

Molded in a coil. Thus bringing an even compression on the wearing surface, making the tire self healing to a reasonable degree.

The method of application holds the tire secure in the channel, insuring full service of the rubber.

We give an absolute guarantee that our tire will not get loose or cut out.

THESE ARE BROAD CLAIMS AND NOT TO BE IDLY PASSED.

The superiority of the Side-Wire Tire for light vehicles is just as great as for heavy work. But on account of the longer life of the rubber is not as quickly demonstrated.

Our booklet is of interest to every manufacturer and every user of tires. A copy and also sample of the tire will be mailed upon request.

FIRESTONE TIRE AND RUBBER CO.

AKRON, OHIO.

BRANCHES:
.....

1788 Broadway
NEW YORK

65 Beverly Street
BOSTON

550 Wabash Avenue
CHICAGO

2212 Olive Street
ST. LOUIS

Please mention "The Hub" when you write.

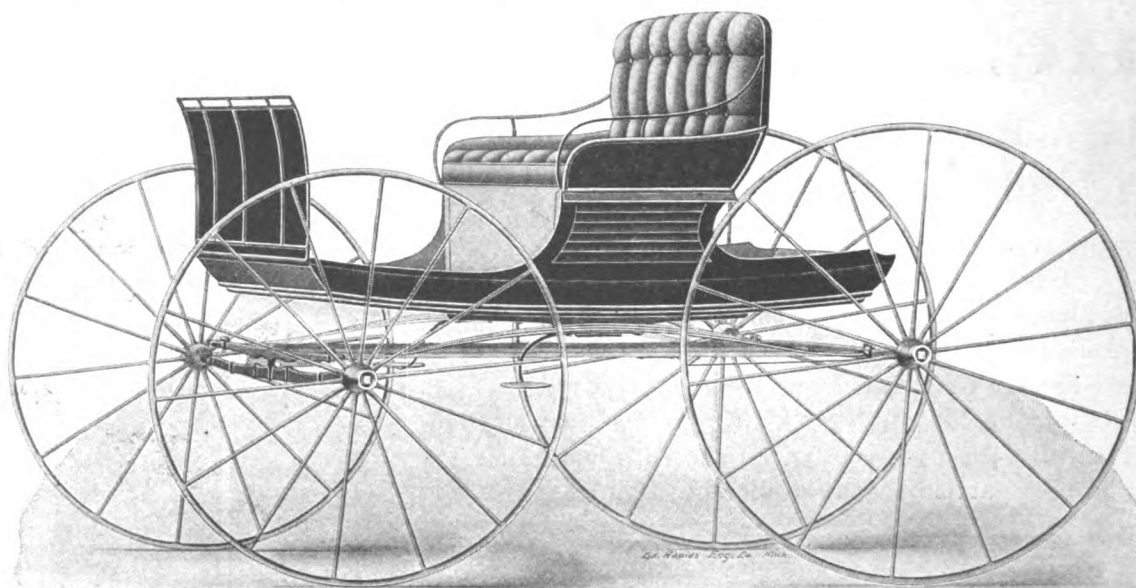
**GROTON
CARRIAGE WORKS**

**GROTON
CARRIAGE WORKS**

IF YOU ARE MARRIED

To some other wagon concern it will not be safe for you to order a sample from us unless you believe in divorces, for our line is bound to win you.

A PAIR OF WINNERS



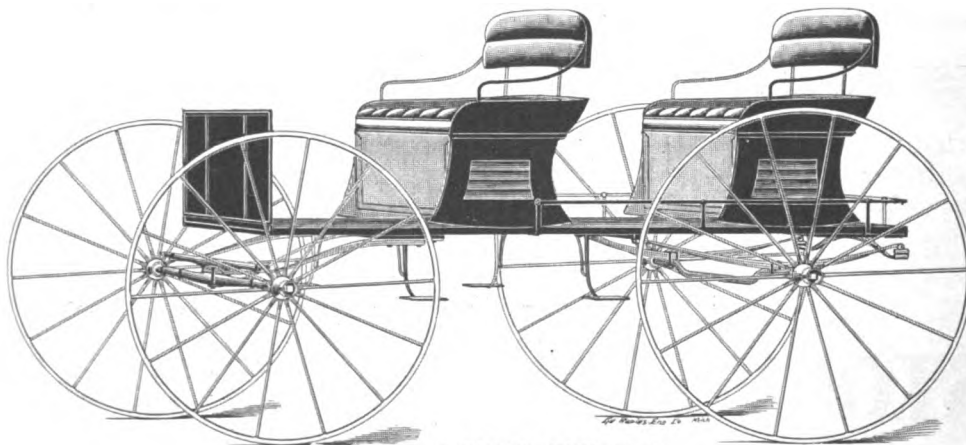
No. 44½. NEW ENGLAND CONCORD.

Our medium weight Concord. We have one heavy job just the thing for showing a pair, and one which is light. Finished in an assortment of bright staple colors.

How about those Park Wagons? We have a line of beauties that are low in price and high in quality and finish. ♣ ♣

Our new catalogue no doubt contains that very job your customer was inquiring for which you did not have—send for it.

Did you notice our line of Stanhopes? They are great money-makers and strictly up-to-date. ♣ ♣ ♣ ♣ ♣



No. 152. TWO SEATED BUCKBOARD.

Rear seat movable and furnished in a variety of colors, with almost any wheel you desire.

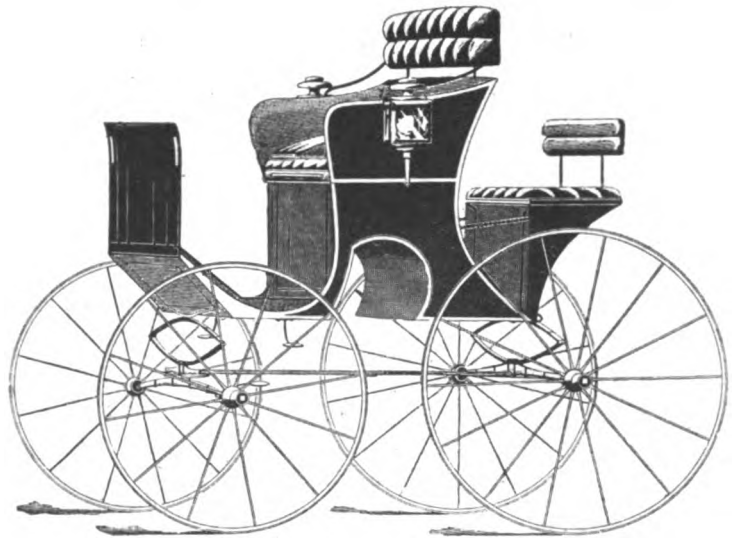
Groton Carriage Works,
GROTON, N. Y.

**GROTON
N.Y.**

**GROTON
N.Y.**

Please mention "The Hub" when you write.

IF YOU WANT MONEY



BONNY DIRECT.

Handle a line of Novelties something different, you know, from that of your competitor. In other words handle our line of

"THOROUGHEDRES"

There are thirty-three of them and every one a winner. We stand ready to prove every claim we make for them, and we claim the earth.

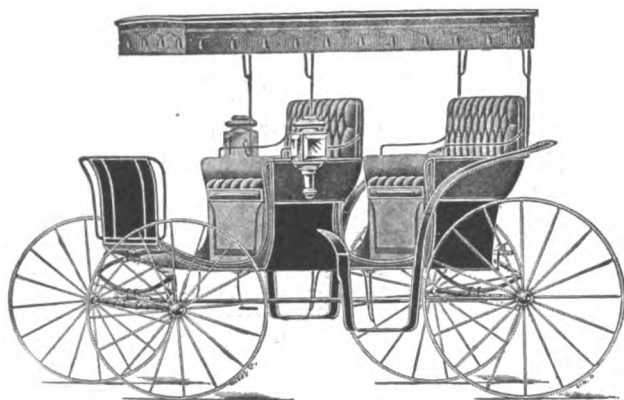


CAPTOR.
Cut-Under Buggy.

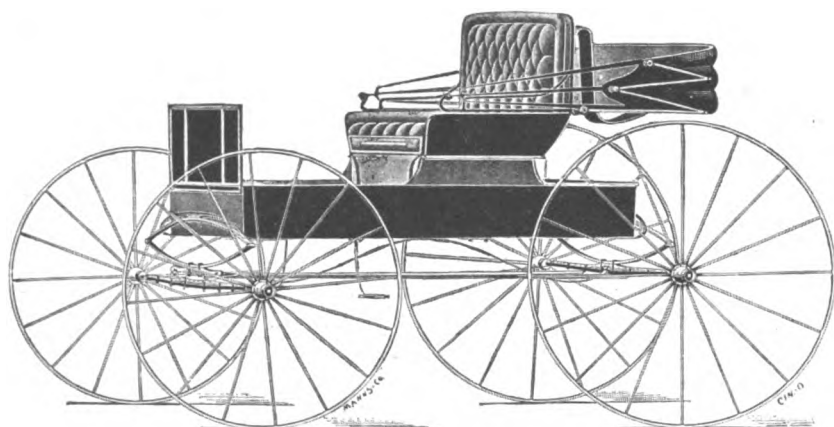
KEYSTONE CARRIAGE CO.,

Cincinnati, O.

SEND FOR CATALOG AND
COLOR PLATES.



No. 282.



No. 312.

Least Said, ... The Quicker Read.

We have gathered about us a combination of creative talent rarely found in one concern.

We have two acres of floor space with all modern conveniences known to buggy building.

We use automatic tire furnaces, tire bender, welder and eveners.

We use hydraulic press for pushing the boxes in wheels after being coated with white lead.

We shrink our tires on hot.

We use Norway iron double-braced shafts.

We keep our men out to ascertain the demands of the trade in different localities and build our goods accordingly.

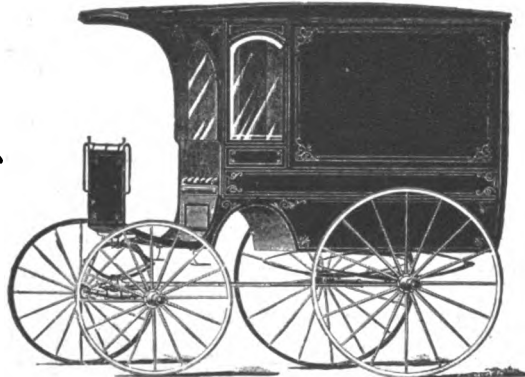
Our customers interests are our own.

Our catalogue is waiting to come when you ask for it.

THE BRIGHTON BUGGY CO.,
CINCINNATI.

**BEST ...
IN THE
MARKET**

THE QUALITY OF
OUR WORK IS
GUARANTEED



No. 365.

**WE BUILD HONEST
WAGONS
AT HONEST PRICES**

Write for Our Illustrated Form
N. Catalogue and Price List.

THE ...
O. ARMLEDER CO.
CINCINNATI, OHIO

The Australasian Coachbuilder and Wheelwright.

A Monthly Illustrated Technical Journal circulating among Coachbuilders and Wheelwrights of the Australian Commonwealth, New Zealand and South Africa.

The Medium for advertising to Coachbuilders and Wheelwrights in these parts.



Advertising rates and other information furnished on application.

Annual subscription \$3.60 in advance post prepaid to any part of the world.

J. E. BISHOP & CO.,
65 Market Street - - - - - SYDNEY, N. S. W., AUSTRALIA

Please mention "The Hub" when you write.

Write for
Catalogue
and
Price List

Keep Your
Eye on ..
DECATUR

*Get in
Line
With
the
Decatur
Buggy
Co.*

*One of
the
Winners at
Cincinnati*

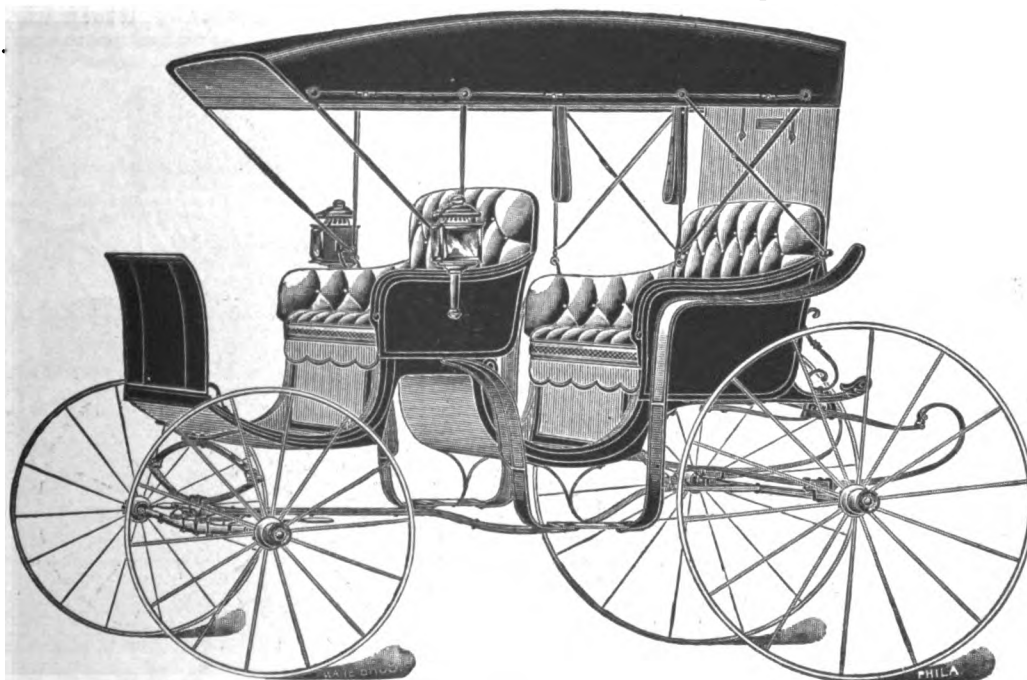


DECATUR BUGGY CO.

MIDDLETOWN, OHIO.

BLEES-McVICKER CARRIAGE CO.,
Manufacturers
of **FINE VEHICLES.**

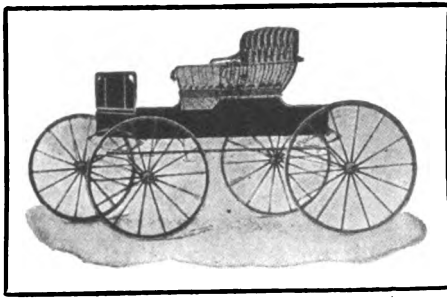
●
STYLE,
QUALITY,
WORKMAN-
SHIP.
●



●
It will
Pay You to
Investigate
●
WRITE FOR
CATALOGUE.
●

MAGON, MISSOURI.

Please mention "The Hub" when you write.



OUR "KAT" IS NOW
IN THE PRINTERS' HANDS.
LET US SEND YOU ONE.

STOP RIGHT NOW AND
DROP US A LINE.

We will be at the CHICAGO AUTOMOBILE
SHOW, March 1 to 8.

National Vehicle Company

E. 22nd St. and Monon. R. R.

INDIANAPOLIS, IND.

TAKE STEPS

TO SECURE OUR LINE.

IT'S A TRADE GETTER.

NEW STYLES IN

Stanhopes

Surreys

Buggies

Runabouts

Phaetons

Bike Wagons

**Automobiles
and Carriages**



The Western Amesbury Line

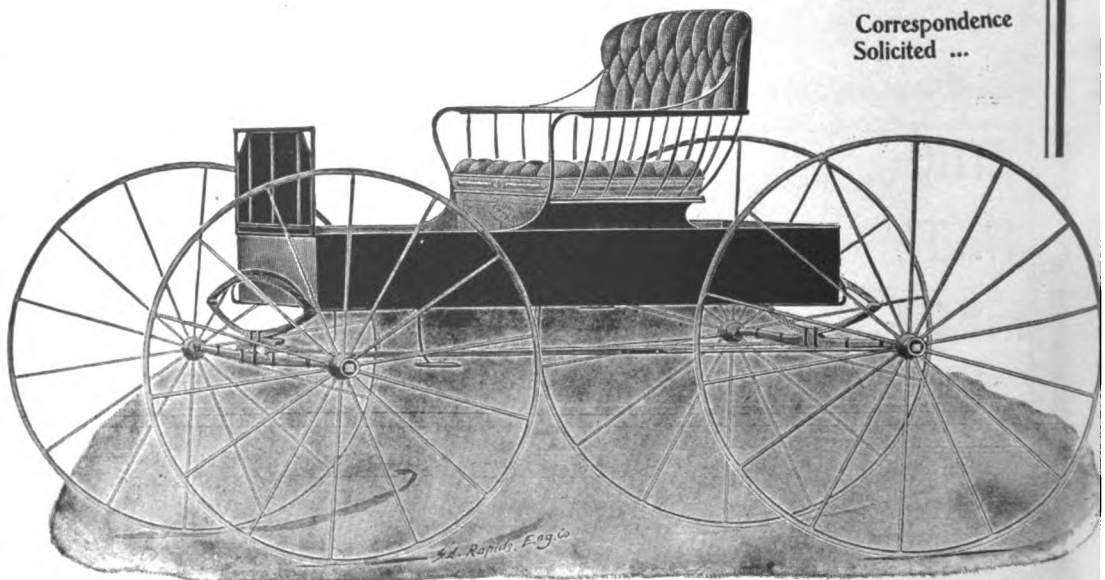
Are Leaders in Style and are Money Makers

Every dealer
should handle
our.....

Surreys
Doctors Stanhopes
Buggies
Road Wagons
Runabouts
Business Wagons
Spring Wagons

Etc.

Correspondence
Solicited ...



No. 11.

PONTIAC BUGGY CO, Pontiac, Mich.

Please mention "The Hub" when you write.

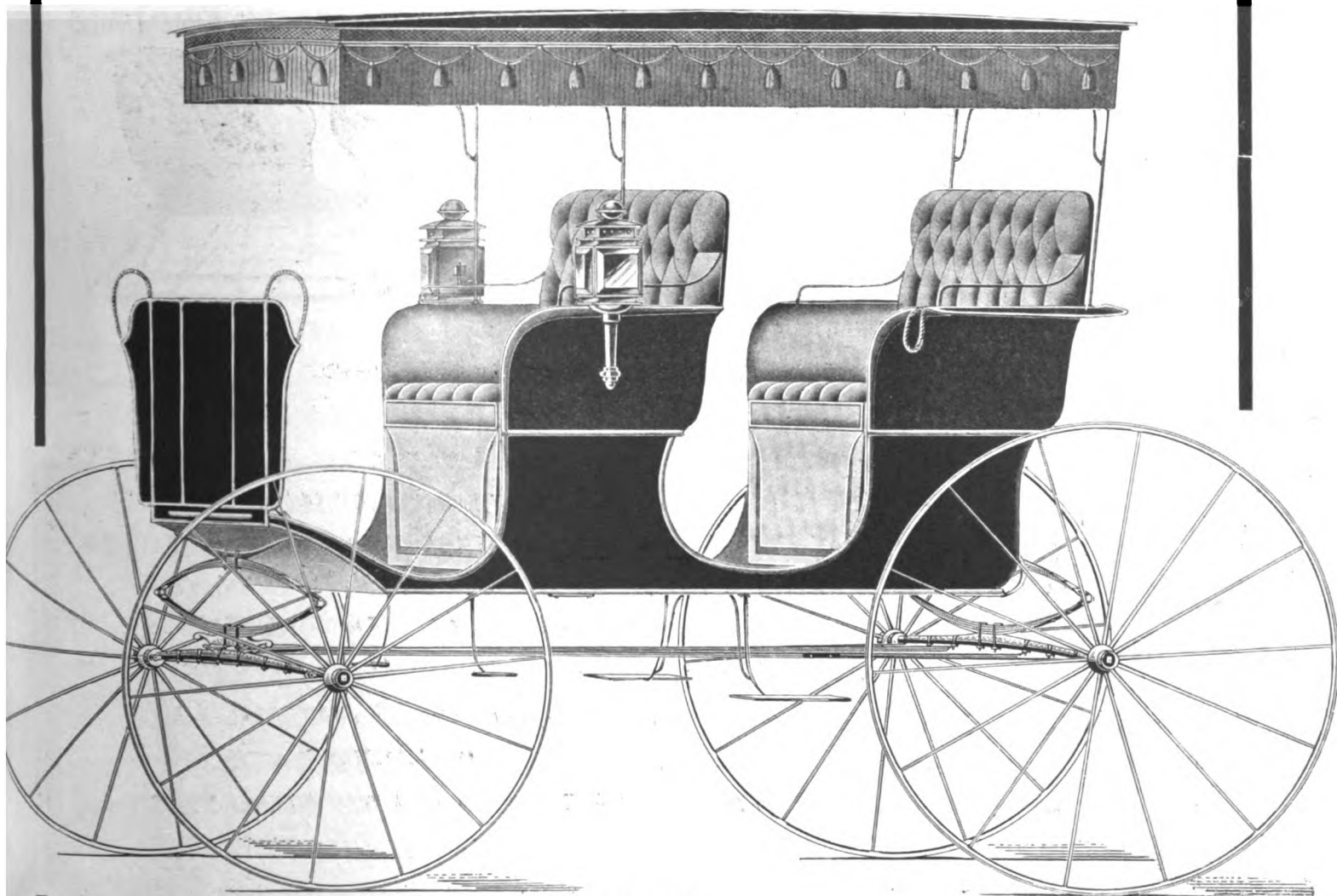
IS A MIGHTY GOOD MEDIUM IN WHICH TO ADVERTISE

BUT A Pleased Patron is the best of all "Ads"

We can't afford to have a displeased customer and we don't intend to have one if a comprehensive guaranty and conscientious effort on our part to do the right thing will prevent it.

IF EVERYBODY OWNED PARRY BUGGIES

THIS AD. WOULD BE USELESS FOR THEY'D ALL BUY 'EM AGAIN.



ALPINE.

Here's another Picture from our 1902 Album. Pretty isn't it? and just as good as a Vehicle can be made. We have about One Hundred different kinds of

Surreys, Buggies, Spring and Road Wagons

IF YOU ARE INTERESTED IN VEHICLES WRITE US. WRITE ANYWAY, WE'LL ANSWER.

PARRY MFG. CO., INDIANAPOLIS, INDIANA.

WATERLOO SLEIGH POINTERS

BEST VALUES

GOOD STYLES

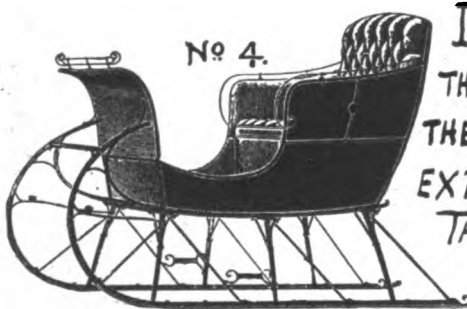
FINE FINISH-DURABILITY

WE ARE OFFERING DISCRIMINATING BUYERS THIS SEASON THE BEST SLEIGH VALUES TO BE FOUND IN THE SLEIGH MARKETS OF THE WORLD.

WE REALIZE THAT THIS IS A SWEEPING STATEMENT, BUT THE CONFIDENCE WE HAVE GAINED BY SELLING OUR SLEIGHS TO THE SAME TRADE YEAR AFTER YEAR FOR NEARLY TWENTY YEARS MAKES US WILLING TO STAND BY THE ABSOLUTE TRUTHFULNESS OF THE SAME WITHOUT ANY QUALIFICATIONS WHATEVER.

WE HAVE ON OUR LIST AS BUYERS OF OUR SLEIGHS A MAJORITY OF THE LEADING DEALERS OF THIS COUNTRY AND THEY TELL^{US} THAT IN THEIR EXPERIENCE A DISSATISFIED USER OF A WATERLOO SLEIGH IS "A VERY RARE BIRD."

IT DOES NOT "HAPPEN SO" THAT OUR SLEIGHS LOOK RIGHT, RIDE RIGHT AND STAY RIGHT.



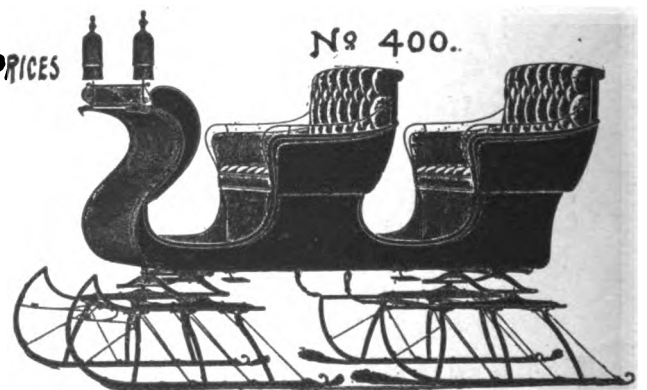
IT IS BECAUSE WE BUILD THEM ON THE OLDFASHIONED PRINCIPLE THAT IT PAYS US TO MAKE THEM RIGHT, COMBINED WITH THE KNOWLEDGE, ACQUIRED BY NEARLY TWENTY YEARS EXPERIENCE, OF HOW TO MAKE THEM RIGHT.

THERE IS NOTHING OLDFASHIONED ABOUT THE SLEIGHS EXCEPT THE OLDFASHIONED HONESTY OF THE MATERIAL AND THE WORKMANSHIP—ASIDE FROM THIS THEY ARE ENTIRELY UP-TO-DATE.

IN THE QUALITIES OF STYLE, FINISH AND PROPORTION THEY STAND FIRST AND IN THE MATTER OF EASY RIDING AND DURABILITY THEY RANK WITH "THE WONDERFUL ONE. HOSS SHAY"

CATALOGUE ON REQUEST AND LOWEST PRICES
QUOTED BONA-FIDE DEALERS

WATERLOO WAGON COMPANY LIMITED,
WATERLOO, SENECA CO., N.Y., U.S.A.



WAGON
WATERLOO
COMPANY
LTD.,

OUR TOP COMFORT



NUMBER 4 1/2.

We show above one of the best Top Sleighs built for the trade.
Every detail of material, construction, comfort and safety is
up to the highest standard of custom sleigh building.
Our line of sleighs embrace all the desirable styles and grades
from a reliable medium priced Portland to the best examples of
the sleigh builder's art.
Catalogue and price list mailed to dealers, in territory not
already assigned, on request.

SENeca Co.
WATERLOO
N.Y.

LATE STYLES

FINE FINISH

Please mention "The Hub" when you write.



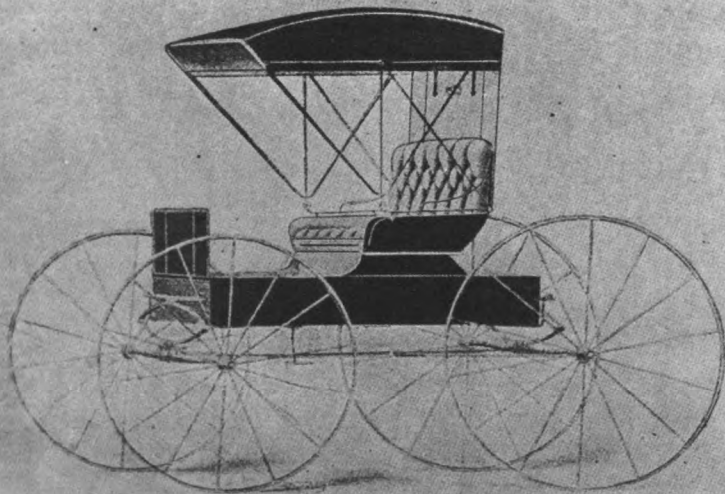
MR. DEALER

That disconsolate look of yours is a disease and we can cure it. Prescription free, medicine furnished at popular prices.

THE RICHLAND VEHICLE CO.

Mansfield, Ohio

✦
Buggies
Surreys
Phaetons
Stanhopes
Runabouts
✦



OUR No. 7-11. WINNER BUGGY



Please mention "The Hub" when you write.



In 15 seconds you can change our No. 110 Top Buggy to one of the handsomest Runabouts you ever saw. For this reason, we call it

2 IN 1

The Greatest Novelty and Quickest Seller on the market, and a money maker every time.

Sterling Buggy Co.
RUSHVILLE, IND.

Watch this page next month. ➤

Please mention "The Hub" when you write.



DO not forget that the H. H. BABCOCK COMPANY is showing many very tasty new things in their *1902 Catalogue*. Avail yourself of a catalogue, which is free. Place your orders early in order to get what you want.

H. H. BABCOCK COMPANY,

CARRIAGE BUILDERS,

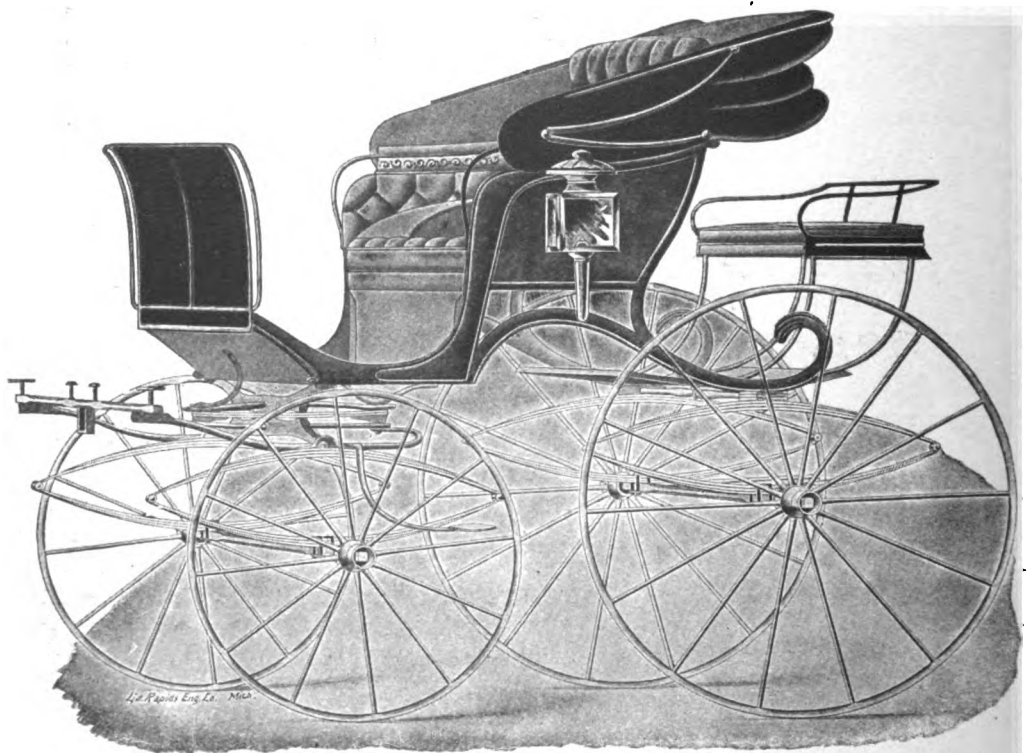
WATERTOWN, N. Y.

BALTIMORE BRANCH,
23-25 West Fayette Street.

No. 126 A.

Platform Spider, with rumble seat. This cut shows one of our popular styles. We have many others that will interest builders of high-grade work.

Catalogue on Application



— MILLER BROS. —

**BUILDERS OF HIGH-GRADE CARRIAGES IN THE WHITE,
AMESBURY, MASS.**

Please mention "The Hub" when you write.

THE CHALLENGE



WE challenge anyone to produce a more attractive combination of price and quality than is represented in our work.

There is a way to produce high quality at low prices. It requires a modern, up-to-date plant, filled with all the latest, most practical appliances known for turning out fine work and saving money.

We have the most up-to-date plant of its kind in the country. In it is represented every known appliance for facilitating and improving the work of our men.

With a sincere desire to excel, backed up by ample facilities and abundant capital, we have produced a line of vehicles that cannot be beaten.

The highest quality at the lowest price is the standard for which we are striving. But we never sacrifice quality to price. Buffalo Vehicles contain every practical improvement known to the carriage trade.

We first seek to make our work desirable in quality, then we try to make it attractive in price.

Our constantly increasing business proves that we are succeeding. Try Buffalo work **IN THE WHITE.**

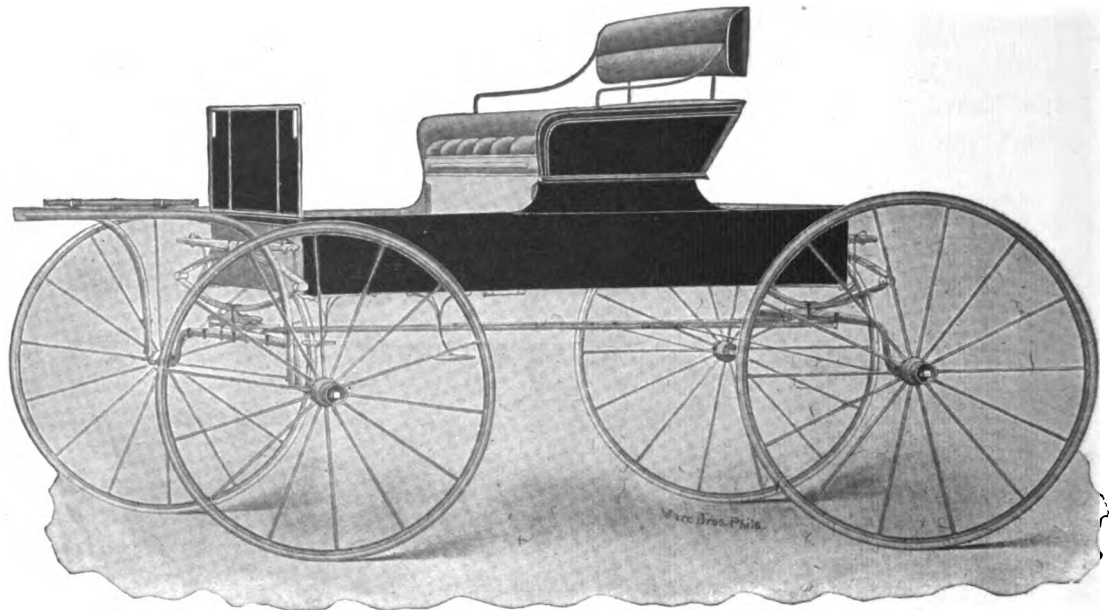
The Buffalo Spring & Gear Company

===== **BUFFALO, N. Y.** =====

POPULAR STYLES ... AND PRICES

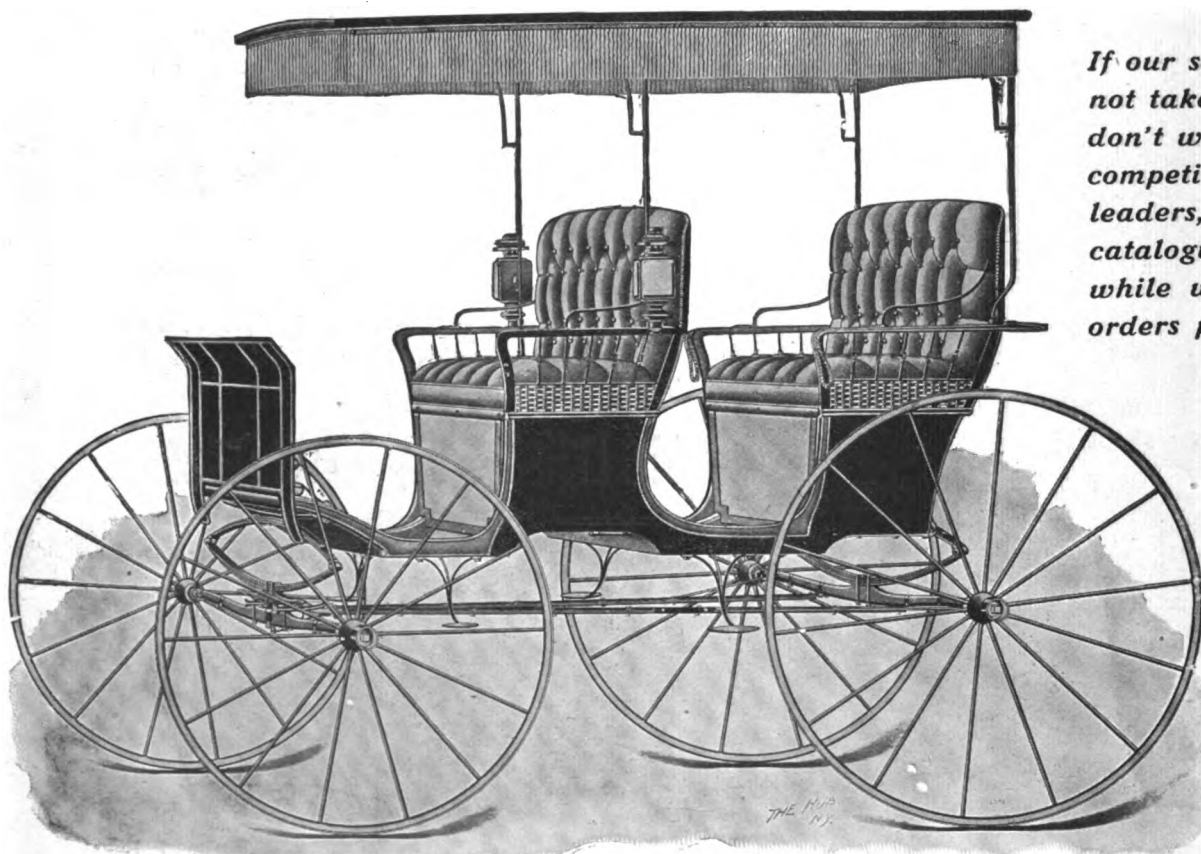


*Our carriages are
sold on their merits
and backed by our
strong guarantee.
Note these two of
our late leading
styles.
They are sellers.*



No. 99.

KEATOR & WELLS, CORTLAND, N. Y.



No. 140.

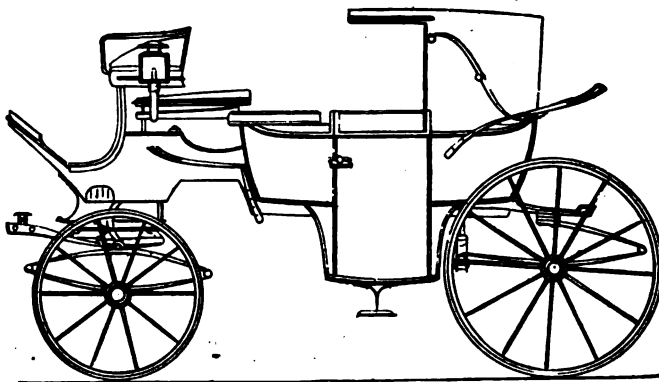
*If our salesmen have
not taken your order
don't wait till your
competitor gets the
leaders, but write for
catalogue and prices
while we can fill your
orders promptly.*

OUR TOP BUGGIES ARE LEADERS IN THEIR CLASS EVERYWHERE.

Please mention "The Hub" when you write.

WHEN you want some up-to-date Landaus, Coaches, Broughams, Hansoms, Busses, Fine Cabriolets and Victorias, write us, we can make them good for you. Practical Coach Gears and Automobile Gears, with or without bodies, furnished at short notice.

*Forgings of all kinds made at short notice.
Please write for cuts and prices. Fine Bodies & Gear Woodwork furnished to the trade*



LEE J. AUBRY CARRIAGE CO.

NEW HAVEN,
CONN.



Don't you mind if others say
That advertising doesn't pay.
Such people surely—there's the rub—
Have never patronized THE HUB.

You are reading this ad.
Why don't you buy this
space, so others will read
about your business?

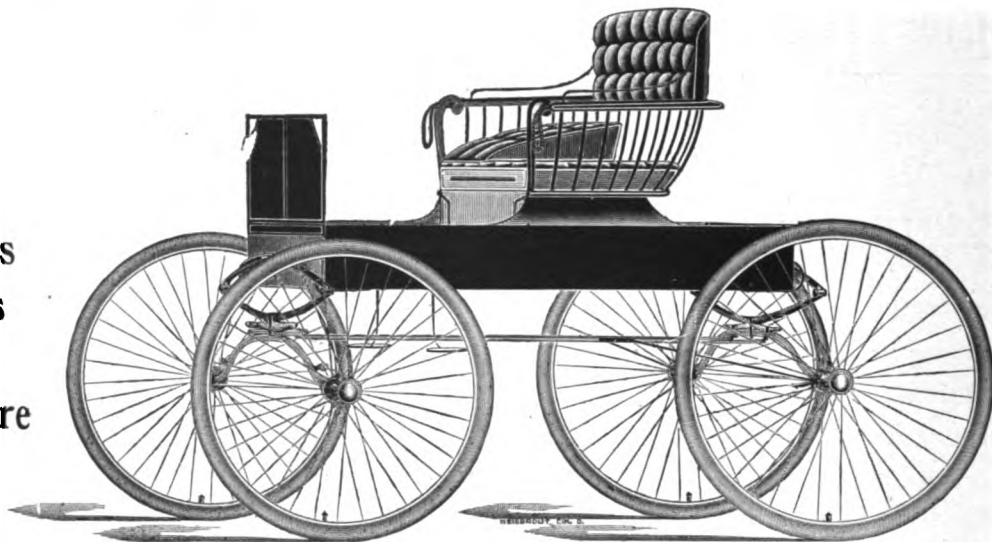
Please mention "The Hub" when you write.

STAVER CARRIAGE CO.,

CHICAGO

Builders of Fine Grade Vehicles for the Trade.

80 Styles
Bike
Wagons
Runabouts
Stanhopes
Surreys
Rubber Tire
Buggies

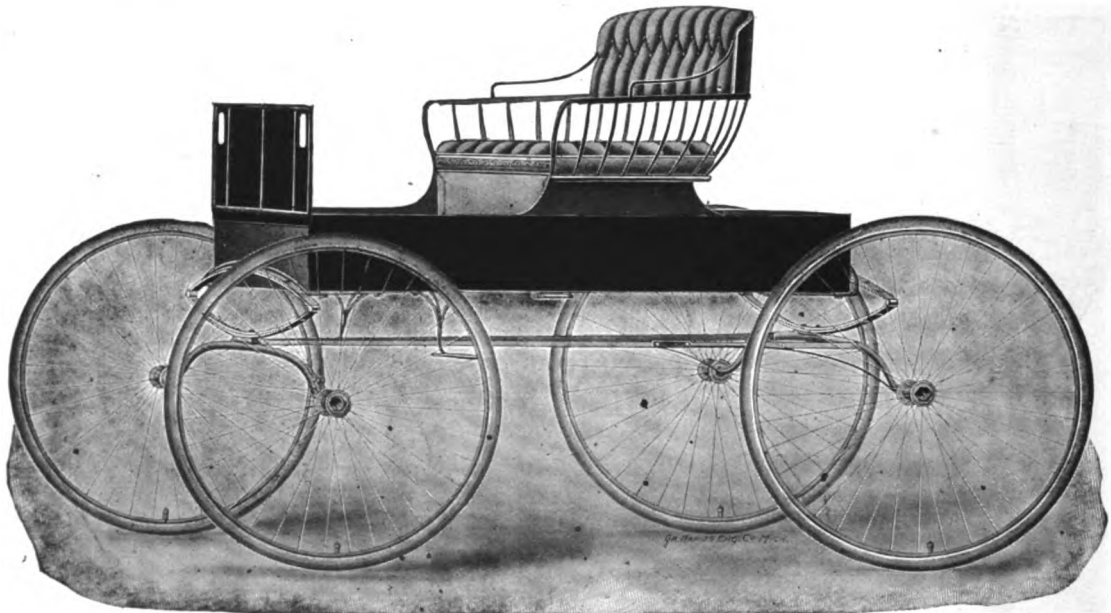


All Work built
with Staver
Dustproof
Long Distance
Axles
The best selling
point ever
put
on a Vehicle!

SEND FOR OUR NEW CATALOGUE—Now Ready and TRADE PRICES.

The Most Complete Line. Attractive Styles. Moderate Prices.

DEALERS MAKE MONEY BY HANDLING THE Standard Line of Vehicles



NEWEST AND BEST LINE ON EARTH

WRITE FOR CATALOGUE AND PRICE LIST ON

Surreys Buggies Road Wagons
Runabouts Phaetons Bike Wagons
Mail Wagons Headquarters for Rubber Tired Vehicles

**STANDARD VEHICLE
COMPANY Pontiac, Mich.**

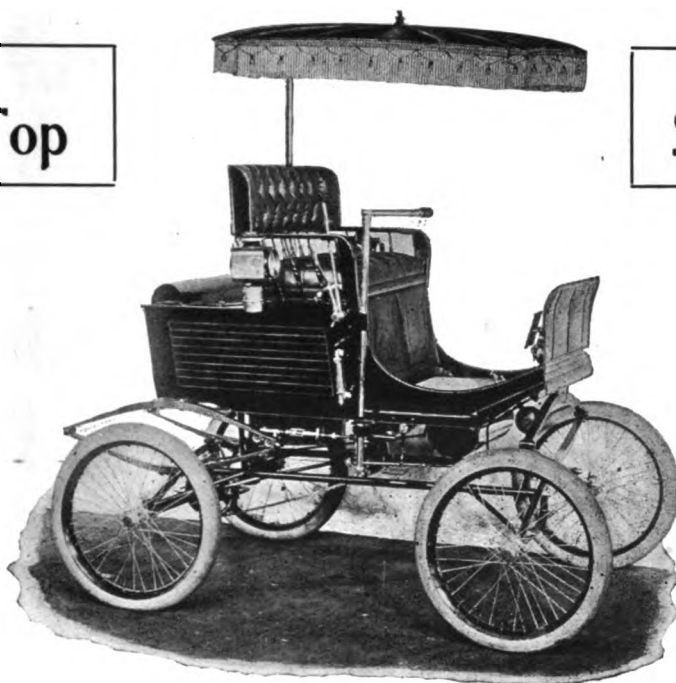
Please mention "The Hub" when you write.

Automobile Manufacturers.

... THE...
Sprague Top

is as necessary to protect the *Chauffeur and Passengers* from the sun's rays as it is the occupants of a carriage. Many automobile manufacturers have already adopted it.

FOR CATALOGUE
WRITE



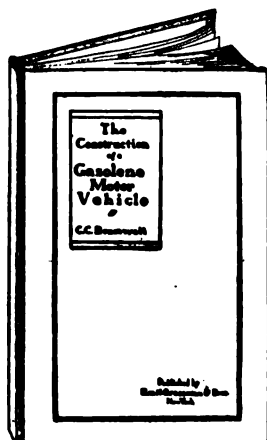
... THE ...
Sprague Top

gives the automobile as well as the carriage a natty appearance and thereby enhances its value to the prospective buyer.

FOR PRICES
WRITE

An Automobile with Sprague Top attached. Made in large sizes for two seats.

The Sprague Umbrella Co., Norwalk, Ohio.



Are You Keeping Up with the Procession?

In no branch of industry has there been such rapid progress as in the development of the motor vehicle.

All eyes are now focussed on the automobile—all genius directed toward its improvement.

One of the best informed men in this country or abroad on this subject—especially with reference to the use of gasolene as a motive power—is Mr. Clarence C. Bramwell.

In six years of observation, study and experimental work in the United States and on the Continent, he has picked up a wealth of information—a store of knowledge.

He offers you this in the form of a handsomely bound, strikingly illustrated book, a book that is practical, and of absorbing interest.

This book tells the story of "*The Construction of a Gasolene Motor Vehicle*"—tells it in a manner that anyone can understand, and so fully, that anyone with constructive ability can build an automobile, while so numerous are the mechanically correct drawings that even an amateur could not go wrong.

The book is not only valuable to the amateur and professional builder of automobiles, but also to the owner and prospective owner. It will teach them what to do and what not to do—will save them from mistakes that may cost hundreds of dollars. "*The Construction of a Gasolene Motor Vehicle*" will cost Two Dollars, prepaid.

For Sale by THE HUB, 24 Murray St., New York.

AUCTION SALE**FRIDAY, MARCH 7th.****44 ELECTRIC VEHICLES,**

including Woods & Riker Opera 'Buses, Broughams.
Hansoms, Cabs, Brakes, Demi Coaches, Victorias, etc.
Also parts and supplies for same. To be sold at public
auction,

FRIDAY, MARCH 7th,

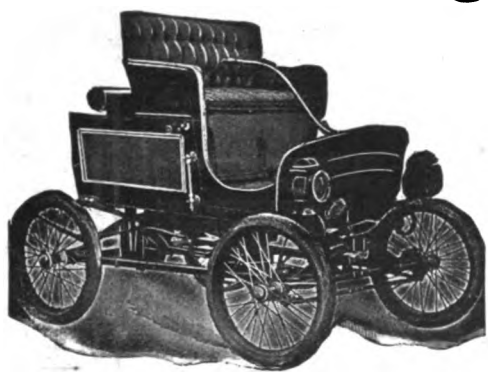
at 10 A. M. in the former stables of

GENERAL CARRIAGE CO.,

North Side of 43d St., Just East of 6th Ave.,
NEW YORK CITY.

Estimates of the cost will be furnished at the sale to
put each automobile in repair.

"Toledo"
Steam Carriages



STRONG SAFE DURABLE
EASY TO OPERATE

SEE OUR COMPLETE EXHIBIT FOR **1902 Pointers**
CHICAGO AUTO SHOW, MARCH 1st TO 8th.

International Motor Car Co.,
TOLEDO, OHIO.

The Hub

CIRCULATES ALL OVER

THE WORLD

It is the Leading Carriage and
Automobile Journal : : : :

TRADE NEWS PUBLISHING CO.,

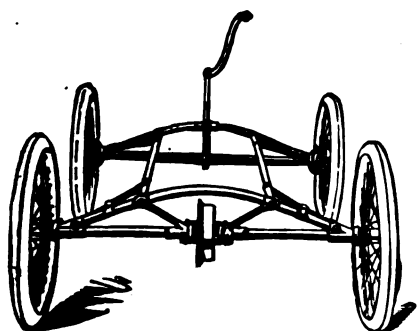
24 & 26 Murray Street, New York.

READING AUTOMOBILE AND GEAR CO.

TENTH AND EXETER STS.
READING, PA.

MANUFACTURERS OF

AUTOMOBILE RUNNING GEARS SPUR COMPENSATING GEARS WYOMA COASTER-BRAKES



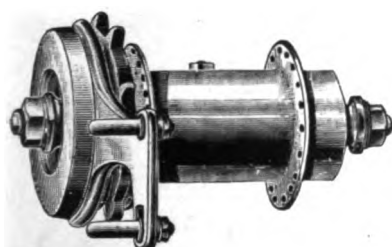
Our running gears are suitable for Gas, Steam or Electric Power. They are built on mechanical principles, of good material and workmanship and finished in the best process of enamel when so ordered. They are furnished with self-contained Spur Compensating Gear. Side or centre steering. Made for two or four passengers. We make a specialty of building for the trade in quantities, to specification.

Manufacturers and Dealers
supplied with our

SELF-CONTAINED SPUR COMPENSATING GEARS

We are the manufac-
turers of the celebrated

WYOMA UNIVERSAL and DETACHABLE COASTER-BRAKES



UNIVERSAL.

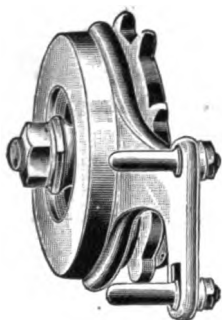
PATENTED

June 12, Aug. 14, Dec. 25, 1900.
Feb. 19, Mar. 26, Apl. 2, 1901.

Wyoma Universal

Coaster Brake and Hub complete, will fit any bicycle. Ready to insert in wheel by lacing in spokes.

List Price, \$4.00



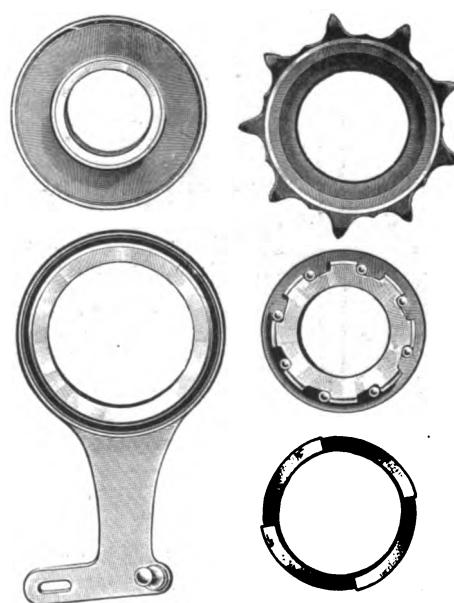
DETACHABLE.

Wyoma Detachable

Made to fit leading Standard Hubs.

List Price, \$3.00

Both models will allow rear wheel to **RUN BACKWARDS**. No Fibre. No Balls. No special axle required. Does not spread frame, **dust** and **water proof**, fully guaranteed.



FIVE PIECES SHOWING
CONSTRUCTION OF
1902 MODELS.



FACTORY OF THE MOBILE COMPANY OF AMERICA.—VIEW LOOKING SOUTH.

THE "MOBILE" A CARRIAGE FOR EVERY-DAY USE.

ON June 10th, four "Mobiles" started in the middle of the afternoon from the factory of The Mobile Company of America at Kingsland-Point-on-the-Hudson and ran to West Point, reaching the ferry at Garrisons in time for the 5:15 boat. Two hours and a half were spent in running about the Military Academy roads, then, after dinner, the four carriages started home by moonlight. The road from Kingsland Point to West Point is hilly, with many steep gradients scattered over its length; but from the State Camp at Peekskill through the Highlands of the Hudson to West Point occur long climbs and very steep and rough roads. The distance traveled was approximately, including the running at the Academy grounds, sixty-five miles. Not a delay or accident of any kind occurred; not a moment's worry to anyone of the eight people who made the journey. The "Mobiles" were in as good condition at the end as at the start—not one, but the entire four—and one of them had come up from New York to Kingsland Point before starting for West Point.

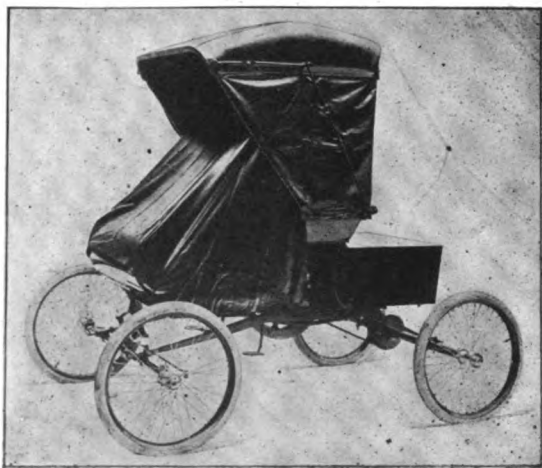
This gives an idea of what the "Mobile" is—a splendid piece of machinery, satisfactory in all its parts, of the best quality and workmanship throughout. Price, \$750. All visitors can inspect every department of the manufacture of "Mobiles." Twenty-five trains stop at Philipse Manor, the station on the company's grounds.

For information regarding "Mobiles" address

THE "MOBILE" COMPANY OF AMERICA,

PHILIPSE MANOR STATION, TARRYTOWN-ON-THE HUDSON, N. Y.

OLDSMOBILE Gasoline Runabout.

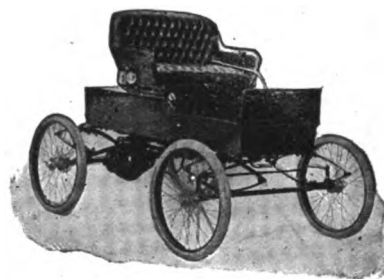


IS a practical motor vehicle for all kinds of weather on either city or country roads, will climb steep grades, starts at will from seat, is controlled by a single lever, and is sold at a popular price. Write for catalog.

Olds Motor Works,

**33 Concord Avenue,
DETROIT, MICH.**

Waverley Electric Vehicles



**THE BEST
ELECTRIC
AUTOMOBILE
BUILT.**

*Good Territory
Open for
Progressive
Dealers.*

**1902 Models on Exhibition, Chicago
Automobile Show, March 1st to 8th.**

International Motor Car Co.

WAVERLEY DEPARTMENT

INDIANAPOLIS, INDIANA.

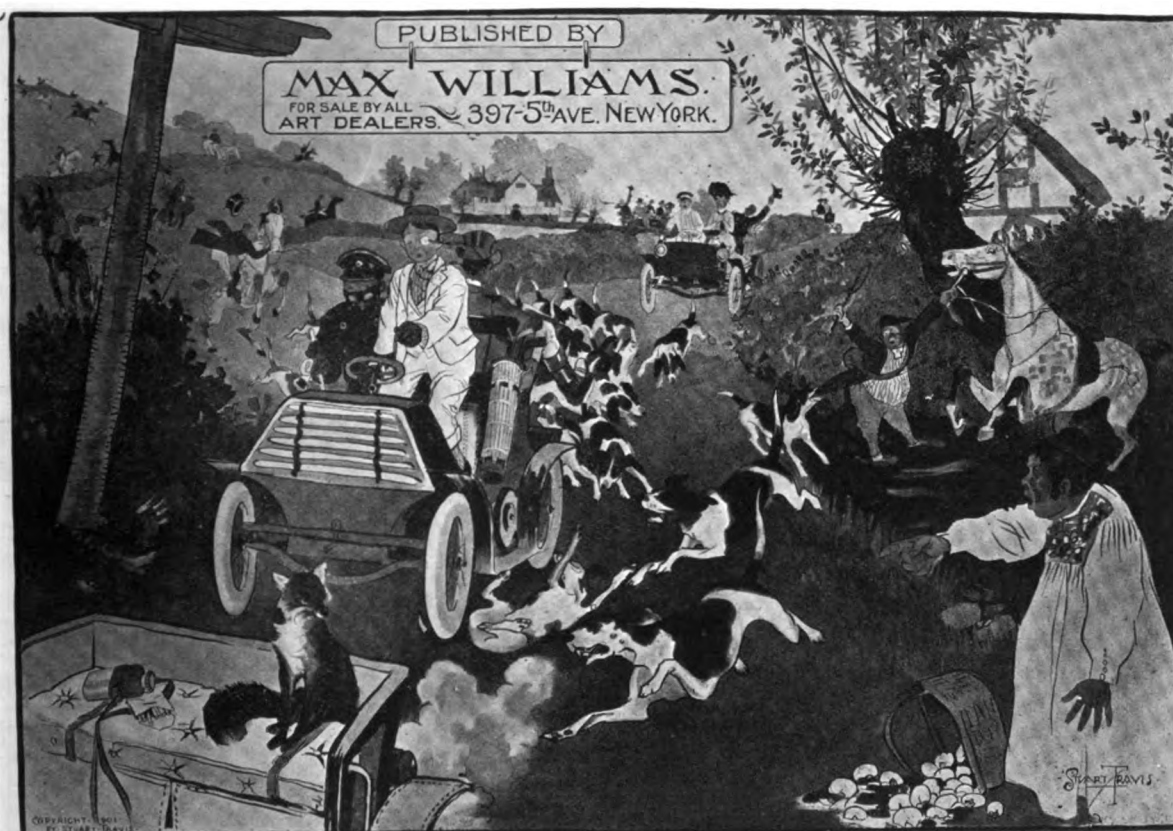
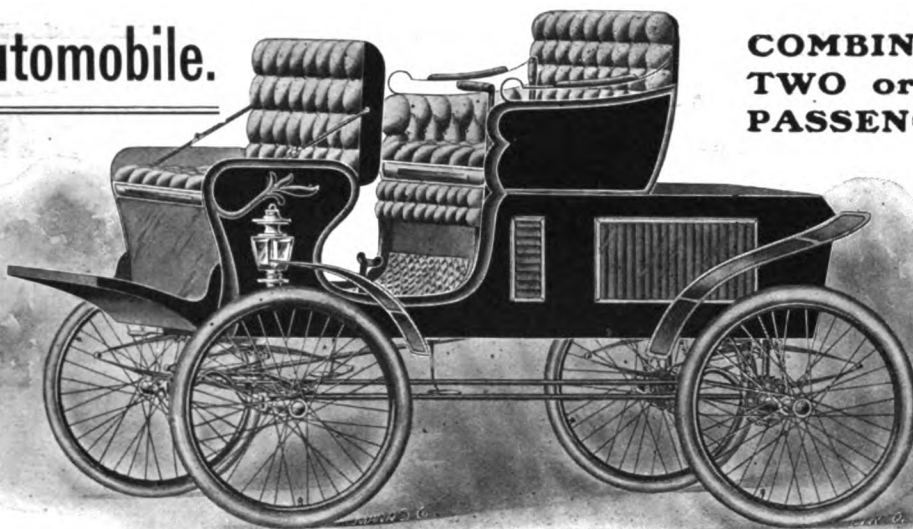
The Darling Automobile.

Built for Service.

Write for our complete Catalogue.

THE
BEARDSLEY
& HUBBS
MFG. CO.
SHELBY, OHIO.

COMBINATION
TWO or FOUR
PASSENGER. 



One of a Series of 4 Pictures by Stuart Travis.
Facsimile in Colors. Price per set, \$15.00.

"The Interrupted Hunt."

"BUBBLE"

JINGLES



THE JOLLY SIDE OF THE
AUTO MOBILE

DID YOU SEE US AT THE AUTOMOBILE SHOW ?

"Bubble" Jingles: The Jolly Side of the Automobile

By STUART TRAVIS.

Read what the papers have said of this attractive book:

TOWN TOPICS:— "should certainly appeal to those who are posted on the automobile . . . and Messrs. Rohde & Haskins have shown themselves masters in the art of book production."

NEW YORK EVENING POST:—The automobile has brought in a brand-new lot of mishaps, and consequently a new resource for the humorous. Mr. Stuart Travis has been quick to grasp this opportunity . . . the first comer in the new field.

LITERARY SUPPLEMENT NEW YORK TIMES:—Vividly portrays the vagaries and vicissitudes of the auto-machine and the man who auto-know-better. The illustrations invest the automobile with jollity and action, as instinct with life as a field in full cry.

LITERARY SUPPLEMENT NEW YORK JOURNAL:—Is one of the most attractive books of the season. Uniquely bound. NEW YORK PRESS:—A literary novelty for the holiday trade.

BOOKSELLER, NEWSDEALER & STATIONER:—Mr. Travis does for the Automobile what Caldecott did for the horse in his famous country scenes.

PHILADELPHIA PRESS:—While studying abroad, Mr. Travis absorbed much of the English country spirit which pervades the work of Caldecott.

This book met with instantaneous success all over the country. It bears the unique distinction of being the first in the field, and Mr. Travis' long experience and success as an artist have peculiarly fitted him for the work. To read this book is to laugh, and every devotee of the new sport will recognize his own experiences, expertly illuminated in verse and picture.

Handsomely bound. Size, small quarto, illustrations in color. Artistic cover and ornamental wrapper. Price, \$1.25. For sale by all dealers or sent postpaid on receipt of price by

ROHDE & HASKINS, NEW YORK.

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The G & J Carriage Tire

IF YOU ARE NOT FAMILIAR WITH
G & J TIRES, WRITE US AND WE WILL
GIVE YOU INFORMATION WHICH WE
BELIEVE WILL BE VALUABLE TO YOU.

G & J TIRES

IMPART A FEELING OF

Comfort and Safety

NOT REPAIRED ON THEORY ;
ANY DRIVER CAN MEND THEM.

Fastest Strongest

CATALOG AND PRICES ON REQUEST.

G & J TIRE Co.

INDIANAPOLIS

Makers of G & J Detachable Tires

FOR ALL KINDS OF VEHICLES.

Brennan Standard Horizontal Motors

Are especially designed for auto-
mobile use where continued hard
work is expected.

Manufactures in Sizes from 4 to 30 H. P.

Write for Catalogue and we
will tell you more about it.

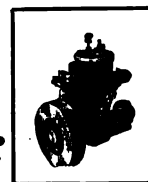
Brennan Motor Co.

SYRACUSE, N. Y.

BUILD YOUR AUTOMOBILE

We furnish all material with draw-
ings of Gasoline Motors, Running
Gears and other parts. ❀ ❀ ❀

GASOLINE
MOTORS...



For LAUNCHES,
AUTOMOBILES,
PUMPS, Etc.

LOWELL MODEL Co.,

Drawer 1213. LOWELL, MASS.

Our Gears are Patented



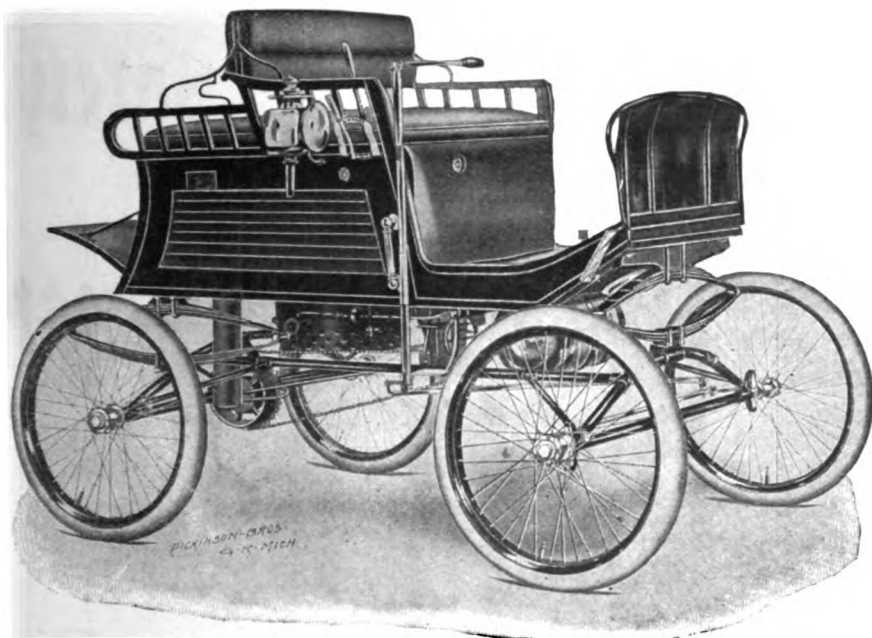
Spur equalizing gears of our
invention are covered by patent
No. 691591, issued Jan. 21, 1902.
The above patent includes our
models 1, 2 and 6 of the design
herewith illustrated. These models
differ only in size, capacity and
price.

Patents have been allowed on our models 3 and 4, those of
internal gear design, and will soon be issued.

The trade is hereby warned against purchasing from others or
manufacturing themselves equalizing gears that infringe our patents.

BROWN-LIPE GEAR CO.,
212 S. Geddes St., Syracuse, N. Y.

The CONRAD



Model No. 70

STEAM Dos-a-Dos

For two or four passengers

WE have this "nobby"
Carriage in stock,
and can make immediate
delivery :: :: :: ::

DESIRABLE AGENTS WANTED.

Write for Catalogue

CONRAD MOTOR CARRIAGE CO.

1413-19 NIAGARA STREET

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BUFFALO, N. Y., U. S. A



In recognition of the importance of the industry established by The "Mobile" Company of America at Kingsland-Point-on-the-Hudson, the New York Central & Hudson River Railroad has established a station at the factory of The "Mobile" Company with a service of twenty-five trains a day.

The original Philipse Manor, two hundred and twenty years old, still stands on the company's property, and the railroad company has appropriately, in view of its historical and literary associations, given this name to the station. The run from the Grand Central Station in New York is one hour. The manor house and old mill and Sleepy Hollow are part of the company's property, connected by the Headless Horseman's Bridge. The old Dutch Church, and Washington Irving's grave and the monument marking the spot where André was captured, are in the immediate vicinity. When you visit New York, you will find a trip to the factory of

THE "MOBILE" COMPANY OF AMERICA

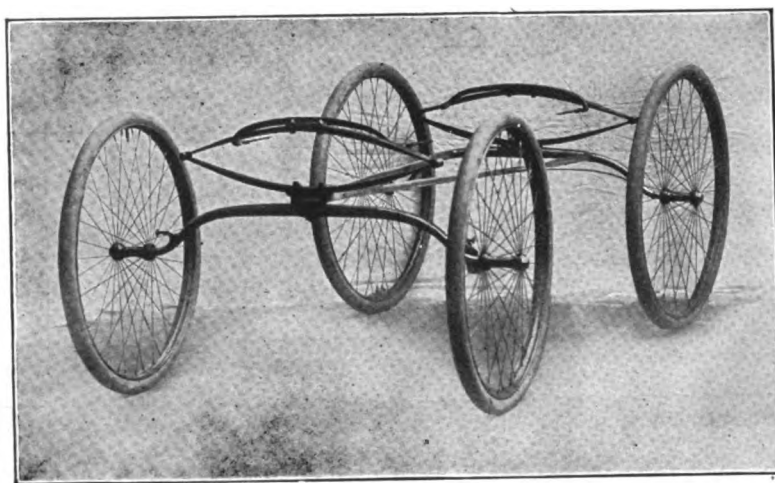
quite worth a half day's outing. Kingsland Point itself is considered to be the most beautiful section of the Hudson. The visitor is looked after by The "Mobile" Company's corps of demonstrators, taken for a ride in a horseless carriage, and shown all the different processes which enter into the fifteen departments required to manufacture a horseless carriage. He may inspect both quality of material and workmanship, see the new carriages tested as they are taken from the works one after another, and have every opportunity to satisfy himself of the excellence of the carriage in every particular. Price, \$750 Complete.

THE "MOBILE" COMPANY OF AMERICA, Philipse Manor Station, Tarrytown, N. Y.

HERCULES TUBULAR **RUNNING GEAR**

Made of High-grade Steel Tubing
Furnished Without Tires, Springs or Reaches

Made in two patterns
—end spring and
side bar.



Axles fitted with wire
wheels, bushings for
wood wheels, or wood
wheels complete.

LIGHTER by 30 pounds than
solid gears.

STRONGER for weight of metal used
than solid gears.

COSTS NO MORE than the best
forged gears,
and ready for the paint shop.

Automobile & Cycle Parts Co.

SMITH STAMPINGS FACTORY

MILWAUKEE, WIS.

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The Hub

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NEW YORK, MARCH, 1902.

No. 12.

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GERMANY.—Gustave Miesen, Bonn a Rh. Subscription price, 12 marks, postpaid.

Closing the Volume.

WITH this month THE HUB closes Volume XLIII., and we look upon it as a fitting time to review the past and to trace the conditions which have led up to the present most satisfactory situation in trade journalism. As the period passed over embraces the greater portion of the time during which the carriage, wagon and automobile industries in this country rose from one of comparative insignificance to one of the largest and most prosperous manufactures, and one that next to wearing apparel and household needs is more closely identified with civilized life than any other. Sixty years ago or about the close of the first half of the

last century the industry had obtained a good foothold and had reached an important position in our large cities, but the trade was in a great measure restricted as the buyers who could indulge in the luxury of a pleasure carriage were few and scattered. The larger number of our finest carriages were imported and those that were built by us were, in the main, after imported models, while many of the materials used were imported, and it will not do to make light of those manufacturers who laid the foundation of the great industry by their genius, skill and zeal as well as their mechanical ability. Conditions were against them. The South was the great market, and none of the large houses of early days were prosperous or otherwise just in accordance with Southern prosperity. Machinery had done little to relieve or expedite labor. The larger plants made their own axles and springs; paints, oils and varnishes were largely imported as well as nearly all of the trimming and lining materials. The first carriage publication made its appearance in book form in about 1853. It was published in Columbus, Ohio, and sold, together with a chart containing about one hundred illustrations, for \$3. A few years later The Coach Makers' Magazine was started as a monthly publication. It in turn was succeeded by the New York Coach Makers' Magazine, and the latter was absorbed by THE HUB, which was first published in 1869-1870. Looking back over the volumes of the earlier productions we find the advertisements restricted to a few articles and confined to a limited territory. In the trade matters that were discussed some attempts were made to explain the "French rule" of carriage drafting, but the bulk of the trade matter was confined to the discussion of matters of trivial importance. Two favorite themes were, in answer to the questions, "Which travels the fastest—the top or the bottom of a wheel?" and "Which is the best—a long or a short screwdriver?" Shop talks were popular, but writers on trade subjects were few, not because of inability nor lack of themes, but because of shop jealousies, which kept each man from giving to the public through the medium of the press, information on technical subjects, even the best and most liberal writers, kept back important information and then essays were of little value because of their lack of detail. It was not until 1868 that a change took place in this respect. Between this time and 1873 three journals, one of which was THE HUB, entered the field and took up the technical discussions in a fearless manner, and by working drawings, carefully prepared essays and close technical descriptions laid the foundation for the independence of the workmen and broke the narrow-mindedness of the worker. These journals went into the workshops and the articles therein provoked discussion and lead to study by liberal minded men, who freely gave their fellows the results of their investigations, and it was this more than any other one thing that lifted the barriers which retarded the carriage industry in this country and made even the most enterprising of our

manufacturers dependent upon the European workshops. During these early days of trade journalism the greatest opposition came from employers, and we speak from personal knowledge when we say that aside from about a dozen prominent manufacturers there were none who gave more than a lukewarm welcome to the representatives of the trade journals, while scores closed their doors against them as they would against a thief, but hard work and the support of the liberal few broke down the barriers, until now the trade journal is recognized as much of a necessity as is the stock of which the vehicle is built. But all of the good work of the journals did not end with the technical information, although that was and is to-day its great mission. The opening of a medium through the advertising columns whereby the trade could be informed at a light expense of a new invention, improvement or a place of sale or manufacture of a specific article, stimulated trade, encouraged the inventor and made known to the consumer what was on the market and brought buyer and seller together, and the value of that medium is so well recognized that no enterprising man would neglect to advertise his goods any more than he would the collecting of a bill for money due him. How marked both the technical general news and the advertising features of trade journalism is well illustrated by *THE HUB*, notably during the past decade and to a marvelous degree during the last four years. Taking the volume just closed as an illustration, there has been published about two hundred and fifty columns of technical trade matter pertaining to the carriage and wagon trade. About one hundred and fifty illustrations in addition to the working drawings or sufficient to complete a 12 mo book of about six hundred pages pertaining to horse-drawn vehicles alone. In the automobile field the situation is much the same. The whole bound in book form would give a volume of nearly the same proportions of that of carriage and wagon matter, while in addition thereto there has been enough in the way of foreign and domestic correspondence, association news and general information, covering all topics of interest to the industries represented, to produce a three-volume of the size of those preceding it, making a library of information that cannot be duplicated by any other publication. In addition there has been one thousand two hundred pages devoted to advertisements in which every article used by the industry from the screw, bolt, forgings, etc., paint, trimming and woodwork material up to the finished vehicles can be found, making a grand total for the year of about one thousand seven hundred and fifty pages, *HUB* size. A mass of information that could not be gotten except through the medium of the trade journal for thousands of dollars. Information that has aided the men in the workshop, the clerk in the office, the builder, dealer and consumer, and directly or indirectly advanced the industry and the men associated with it as well as those dependent upon it, and which has contributed its share toward the great prosperity enjoyed by our nation. And has shown to people in all parts of the world, because of our extended foreign circulation, the high position attained by the American manufacturer of accessories and of vehicles of every class and character, that tend to aid in transportation or administer to personal comfort and pleasure. With this record *THE HUB* salutes the vehicle trade at the close of Volume XLIII., and starts on its work to make the next volume better if possible than any of the past.



Future Finished Carriage Exhibits.

THE HUB has not taken kindly to the exhibits of finished carriages, as these exhibits are now conducted, not through antagonism of the men who have control of them, and who have made them a financial success at least, but because we do not believe such exhibits

to be for the best interests of the trade although they may prove profitable to a few of the exhibitors. We say a few, for as far as we have been able to learn by a careful canvas, the aggregate sales of those manufacturers who have met with the best results at these exhibits have not increased enough to compensate them for the outlay. A few report otherwise, but they are the exceptions, not the rule, and even they can attribute their gain to the new fields, and the new customers, a condition that is likely to be neutralized by the influx of work from new builders who have invaded their own localities. To many the heavy outlay has been a serious matter, but they have incurred it rather than to allow a rival builder to show his goods in their absence. Notwithstanding the precautions taken, wholesale prices have been made known to consumers and dealers have had to combat with that knowledge or to lose regular customers. There are few localities where four hundred to a thousand finished carriages of medium or popular grades can be shown without doing injury to the dealers whose business territory is invaded, and a feeling of rivalry is engendered that invites unfair dealings. Every manufacturer who exhibits at one of these expositions does so, not with a view to cultivating his home market, but with the hope of entering a new market, and it is but a change of customers, not an increase of business, that is reached. Could these shows be made up of special carriages of new design and for exposition only they might benefit the manufacturer, but as it is they are for sales only, and the manufacturer does not care to reship his carriages after the show to his factory, and to obviate that he will make concessions and thereby save himself loss. The effect on the local trade, however, is the same whether the carriages are sold at the show or reshipped—the dealer in that immediate locality is the loser. We do not know whether these shows will continue or not, most likely they will continue, and if they do the local trade in the locality where the show is held will feel an injurious result so long as prices wholesale and retail are quoted to the dealer, and leak out to the consumer. A case occurred at the last New York show where a man announced that he was not a dealer in the sense recognized by the dealers' association, and asked for retail prices only. These were given him freely, sometimes a little above the mark. He carefully noted these and afterwards through a friend learned just what percentage the retail exceeded the wholesale price and at once became acquainted with the wholesale price of each manufacturer and made good use of that knowledge later on when he became ready to restock his livery stable. It is possible that a refusal to quote prices to anybody in or at the time of the exhibition would tend to correct the evil that dealers complain of. If so they should be made one of the conditions. Surely if these shows are to continue the local dealer as well as the local manufacturer should be protected in every way possible. It appears to us that the main beneficiaries of these exhibits are those carriage manufacturers who gather from the exhibits the new features and appropriate them to their own use. In this the western builders are the gainers, and they make good use of the exhibits to stock up their minds with the best products and the newest results of those builders who devote much time and money to the bringing out of new designs, and then find these duplicated by builders who are willing to follow and put these duplicates on the market in a few weeks if needs be after the exhibits have passed.



Speedways.

THE building of speedways in many parts of the country where the trotting horse can be speeded with safety without resorting to the race track has been a wonderful stimulant to the breeders of trotters, the manufacturers of light speeding wagons and the makers of suitable harness, and if these speedways can be maintained for the purposes for which they are devised there will be a steady advance in the demand for light horses and carriages, but owners of heavier vehicles are demanding that they have the same privileges on these speedways as that accorded to owners of light vehicles. This is at once selfish and destructive. Nothing bars these men from these speedways if they will

drive appropriate vehicles, but their dog in the manger nature leads them to refuse to own speedy horses and at the same time prevent those who would drive fleet trotters from enjoying the opportunity, for if the heavy carriage is to have full freedom on the speedway, then the trotter must leave, first because of the danger from these heavy vehicles, and secondly from the impossibility of keeping a good smooth track when it is run over by heavy vehicle wheels which cut it up. Laws should be made that will keep the speedway tracks free from encroachment by other than light vehicles. If it is not done speedways will cease to be built or cared for.



Exhibiting Carriage Materials.

THE exhibit of carriage materials at the finished vehicles exhibitions has caused many to regret that they had goods on exhibition. The manufacturer of these materials does not quote what may be termed retail prices, and because of this carriage dealers have learned exactly what carriage manufacturers have to pay for many of the extra appliances and new improvements, and they have made use of this knowledge when placing orders with manufacturers. The carriage dealer has no more right to know what the carriage manufacturer pays for his accessories than the consumer has to know what the dealer pays the manufacturer for the carriages he sells him, for if the dealer acquires this knowledge he can exact from the carriage manufacturer terms on extras that in the end will entail loss to the latter. Let the opinions differ as they may regarding the holding of finished carriage exhibits, there should be no dispute as to the holding of the exhibits of materials at a different time and place than that of the finished carriages, and all are satisfied that the movement to put a stop to such exhibits of materials is one that deserves success. Although all are not prepared to go as far as has been suggested by some who declare they will not purchase accessories of men who exhibit their goods at the finished carriage shows, well defined movements are made regarding exhibits, and we hope with the issue of April HUB to be able to place something of a positive character in this connection before our readers.

PATENTS EASILY BUNGLED.

INVENTORS SHOULD CAREFULLY SELECT THEIR ATTORNEYS.

The following from Davis & Davis, patent lawyers of New York and Washington, D. C., will interest inventors:

There is no legal document so easy to bungle as a patent. Almost any clever man can soon learn to describe a mechanical contrivance and draw up "claims" that will pass muster at the Patent Office, so far as "form" is concerned. It is easy, therefore, to deceive an inventor as to the strength and scope of his patent; a pretty drawing and a full description of the device easily convinces him that he has a splendid patent. He is not undeceived until he tries to sell the patent. Then it must undergo the ordeal of scrutiny by an experienced patent lawyer, for but none but fools invest in patent property without first having it examined by a patent expert. And then, when too late, if the patent is defective, it dawns upon the patentee that the government seal does not guarantee the scope of the patent and that he had no reliance for a strong patent upon anything but his solicitor's skill and faithfulness. Patents covering many splendid inventions have been reported against by experts in patent law simply because of ignorance and carelessness on the part of the patentee's solicitor, and it is probable that most of the complaints about inventors not reaping the benefit of their inventions would not be heard if they would exercise more care in the selection of their solicitors.

The seal of the government does not guarantee the scope of the patent. The only assurance as to the strength of a patent is that derived from the skill of the solicitor. The official examiners have no power to broaden the scope of the "claims." The solicitor or himself must be depended upon to fight for and obtain the proper claims. The choice of an attorney to represent him at the Patent Office is therefore a serious matter to every inventor, especially as the attorney

must be given full power to cancel and amend the papers. No matter how small a device is, the chance of bungling is the same, and therefore the necessity for caution is not lessened. The smallest inventors are usually the most valuable, but only when properly protected; a single word too many or too few in a claim often destroys the value of a patent, no matter how pretty the drawing may appear or how smooth the specification may read. In short, the inventor must use his common sense in selecting an attorney, remembering that the attorney who offers any inducements besides skill and faithfulness, is usually incapable, else he would not be compelled to resort to such schemes to get business. And he should also remember that to understand the numerous patent laws and be familiar with the main classes of machinery requires such a high degree of training and study that it takes many years to fit a man for the practice of the profession. A man, to be a good solicitor of patents, must not only be a lawyer, but must be a good theoretical mechanician. It is, therefore, clear that when an attorney receives but a modest fee for personally preparing and prosecuting a patent application and does his work faithfully there is no room for "free advertisements," or other inducements of any value.

Under recent decisions of the Supreme Court of the United States it is now almost impossible to have patents that are narrow and limited in scope broadened by means of a "reissue," hence it is of the utmost importance to inventors to employ competent and experienced counsel to properly present and prosecute their original applications before the Patent Office.

The question of choosing a solicitor is of such grave importance that we call the attention of inventors to the following extract from the report of the Commissioner of Patents to Congress, dated January 31, 1898:

"For years the necessity for the establishment of a patent bar has been recognized. The laws governing the grant of patents are not as fully understood by the general public as they should be. The inventor who for the first time seeks a patent, particularly if he resides at a distance from the larger cities, generally believes that all he needs in order to secure protection for his invention is a document issued by the Patent Office and bearing its seal. He does not know, apparently, that however valuable his invention may be, the patent issued therefor may, if not properly drawn, fail to protect him against infringers and *practically worthless and be no more in effect than a notice to all the world that the invention may be used by any one without paying royalty to the inventor.* Many such inventors, knowing of no patent solicitor in their neighborhood, trust their inventions to some pretended patent attorney, who, without the experience or qualifications necessary to render applicants for patents valuable service and without the high sense of obligation to the interests of his clients, and with no purpose beyond securing fees from the inventors, spreads high-sounding, self-laudatory, and utterly unprofessional advertisements broadcast over the country. Under the over-liberal rule of practice by which any person of intelligence and good moral character may appear as the agent or attorney in fact of an applicant not a few such attorneys have in the past been permitted to practice before the office, with the result, that on applications badly prepared and unskillfully and carelessly prosecuted, patents were issued which, while good for all that they claimed, were worthless in that they failed to adequately protect inventions which, properly claimed, might have been worth thousands of dollars."

Description of Latest Styles.

ENGLISH FOUR WHEELED DOG CART.

(See Fashion Plate No. 548.)

Scale, ½ in. to the Foot.

FASHION PLATE No. 548 illustrates an English four wheel dog cart. It is one of the latest London styles. It is made up with a phaeton front, which gives it an attractive and stylish appearance.

Dimensions of Woodwork.—Body: Length, 68 in.; depth, 15 in.; width across bottom, 31 in.; at seat, outside of pillars, 41 in.; at top, outside of pillars, 43 in. Turnunder, 6 in. Wheels: Wood hub; height, front, 36 in.; rear, 44 in.; hubs, length, 8½ in.; diam. at center, 6¼ in.; front end, 4 in.; back end, 4¾ in.; size of spokes, 1½ in.; number of spokes, 12 and 14; stagger, ¾ in.; depth of rims, 2 in.; tread of rims, 1½ in.; depth of bands, front, 3½ in.; back, ¾ in.; distance between center of axles, 50 in.

Dimensions of Ironwork.—Springs: Front, 34 in. long between centers of heads, with $7\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{1}{2}$ in.; number of plates, 4; thickness, No. 3 steel; back, 38 in. long, with $8\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{1}{2}$ in.; number of plates, 4; thickness, No. 3 steel. Axles, $1\frac{1}{4}$ in. Tires, $1\frac{1}{4}$ in. by $\frac{1}{2}$ in. Fifth wheel, 21 in. diam. Track, outside, 4 ft. 8 in.

Painting.—Body, black; seat panels, stanhope pillars and lattice work, dark green. Gear, dark green, striped black. Trimming, dark green cloth. Finish, rails, lamps, etc., black.

CANOPY TOP SURREY.

Scale, $\frac{1}{2}$ in. to the Foot.

(See Fashion Plate No. 549.)

FASHION Plate No. 549 shows a very pleasing style of canopy top surrey, one that is easy to build, roomy and convenient, and one that will present an up-to-date appearance when completed. There are many little points that deserve special attention, while the general appearance is most favorable.

Dimensions of Woodwork.—Body: Width across top, outside, 42 in.; at seat, 36 in.; across bottom, 28 in.; turnunder, 7 in. Wheels: Wood hub; height, front, 38 in.; rear, 44 in.; hubs, length, $6\frac{1}{2}$ in.; diam. at center, 4 in.; front end, $2\frac{1}{2}$ in.; back end, 3 in.; size of spokes, $1\frac{5}{16}$ in.; number of spokes, 14 and 14; stagger, $\frac{3}{8}$ in.; depth of rims, $1\frac{1}{4}$ in.; tread of rims, $1\frac{1}{8}$ in.; depth of bands, front, $2\frac{1}{2}$ in.; back, $\frac{3}{4}$ in.; distance between center of axles, 62 in.

Dimensions of Ironwork.—Springs: Front, 35 in. long between centers of heads, with $6\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{1}{2}$ in.; number of plates, 5; thickness, No. 4 steel; back, 36 in. long, with $7\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{1}{2}$ in.; number of plates, 4; thickness, No. 4 steel. Axles, $1\frac{1}{4}$ in. Tires, $1\frac{1}{8}$ in. by $\frac{5}{16}$ in. Fifth wheel, 14 in. diam. Track, outside, 4 ft. 8 in.

Painting.—Body, black; imitation blinds on side; panels carmine. Gear, carmine, striped black. Trimming, dark green cloth made up in blocks. Finish, black lamps, rails, etc.

FURNITURE TRUCK.

Scale, $\frac{1}{2}$ in. to the Foot.

(See Fashion Plate No. 551.)

THE furniture truck shown by Fashion Plate No. 551 is a new departure in this style of vehicle. It is at once attractive and convenient. As will be noticed the side panel is of three parts, the front and rear being finished "express" style with large center panels, while the center section is attached to rungs which can be lifted out, making the body accessible from the sides. The tops of the stationary sides are finished with large brass rails, as is also the driver's seat. We commend this truck to the attention of truck builders who are desirous of being in the front.

Dimensions of Woodwork.—Body: Length, 10 ft.; width, 5 ft.; width of seat at bottom, 34 in. Wheels: Wood hub; height, front, 3 ft.; rear, 4 ft. 4 in.; hubs, length, 10 in.; diam. at center, 7 in. and $7\frac{1}{2}$ in.; front end, $4\frac{1}{4}$ in. and $4\frac{3}{4}$ in.; back end, 5 in. and $5\frac{1}{2}$ in.; size of spokes, $2\frac{1}{8}$ in. and $2\frac{1}{4}$ in.; number of spokes, 12 and 14; stagger, $\frac{1}{4}$ in.; depth of rims, 2 in.; tread of rims, $1\frac{3}{4}$ in.; depth of bands, front, 3 in.; back, 1 in.; distance between center of axles, 72 in.

Dimensions of Ironwork.—Springs: Front, 42 in. long between centers of heads, with $4\frac{1}{2}$ in. opening on main leaf; width of steel, $2\frac{1}{4}$ in.; number of plates, 9; thickness, No. 2 steel; front cross, 46 in. long, with $3\frac{1}{2}$ in. set; number of plates, 10; thickness, No. 2 steel; back, 44 in. long, with $4\frac{1}{2}$ in. opening on main leaf; width of steel, $2\frac{1}{4}$ in.; number of plates, 9; thickness, No. 2 steel; back cross, 48 in. long, with 4 in. set on main leaf; number of plates, 10; thickness, No. 2 steel. Axles, front, $1\frac{7}{8}$ in.; rear, 2 in. Tires, $1\frac{3}{4}$ in. by $\frac{5}{8}$ in. Fifth wheel, 34 in. diam. Track, outside, 6 ft.

Painting.—Body, deep maroon, champfers black; the small side panels serve as fine locations for firm name and business. Gear, maroon, striped black. Trimming, cushion, black enameled leather; top covered with black oiled duck. Finish, rails are brass.

CONFECTIONER'S WAGON.

Scale, $\frac{1}{2}$ in. to the Foot.

(See Fashion Plate No. 550.)

FASHION Plate No. 550 illustrates a special delivery wagon designed for confectioners' use. The large panels are cut by mouldings which are nailed on, and when painted they are shaded wherever necessary to insure the full effect of the design. The interior is fitted with trays, shelves, drawers, and in addition wicker baskets are made for specific uses. No two confectioners fit up the interior alike, but all so arrange it as to admit of free access from the rear, the full length of the body. The general style of the body is that now most in favor for special wagons.

Dimensions of Woodwork.—Body: Length, 8 ft.; width across top, 3 ft. 9 in.; across bottom, 3 ft. 6 in.; turnunder on sides, $1\frac{1}{2}$ in. Wheels: Wood hub; height, front, 3 ft.; rear, 4 ft.; hubs, length, 8 in.; diam. at center, 6 in.; front end, 4 in.; back end, $4\frac{3}{4}$ in.; size of spokes, $1\frac{3}{4}$ in.; number of spokes, 12 and 14; stagger, $\frac{1}{4}$ in.; depth of rims, $1\frac{3}{4}$ in.; tread of rims, $1\frac{1}{2}$ in.; depth of bands, front, $2\frac{1}{2}$ in.; back, 1 in.; distance between center of axles, 62 in.

Dimensions of Ironwork.—Springs: Front, 36 in. long between centers of heads, with $3\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 6; thickness, No. 2 steel; front cross, 42 in. long, with 4 in. set; number of plates, 7; thickness, No. 2 steel; back, 36 in. long, with $3\frac{1}{2}$ in. opening on main leaf; width of steel, $1\frac{3}{4}$ in.; number of plates, 7; thickness, No. 2 steel; back cross, 42 in. long, with 4 in. set on main leaf; number of plates, 8; thickness, No. 2 steel. Axles, front $1\frac{1}{2}$ in.; rear, $1\frac{5}{8}$ in. Tires, $1\frac{1}{2}$ in. by $\frac{7}{16}$ in. steel. Fifth wheel, 22 in. diam. Track, outside, 4 ft. 8 in.

Painting.—Body, red; mouldings gilded; panel on sides for lettering is white, lettering thereon gold; monogram medallions are gold. Gear, red striping, black. Trimming, cushion and fall enameled leather. Finish, brass hand rails and dash rail.

SQUARE BOX BUGGY.

(For Illustration see "Latest Styles.")

PLATE CCXV. shows a buggy with child's seat attached, built by G. H. Hutton & Co., of Baltimore, Md., manufacturers of specialties in carriage hardware, among which are patent jump seat irons, have added to their product a line of folding seat irons of new construction, designed primarily for the support of a child's seat, but will be made for adults as well. These irons combine strength, simplicity and finish with the advantage that the seat can be turned forward under the front seat out of sight or taken out and set aside, with the further advantage that the seat can be adapted to a number of styles of vehicles as they are now made, without any change being made in the vehicle. They have already received a number of orders for them, some large and some for samples, and others for export. There is likely to be a large demand for these new seat irons, as carriage builders and dealers unite in recognizing the value of such an addition to the vehicle.

OMNIBUS.

(For illustration see "Latest Styles.")

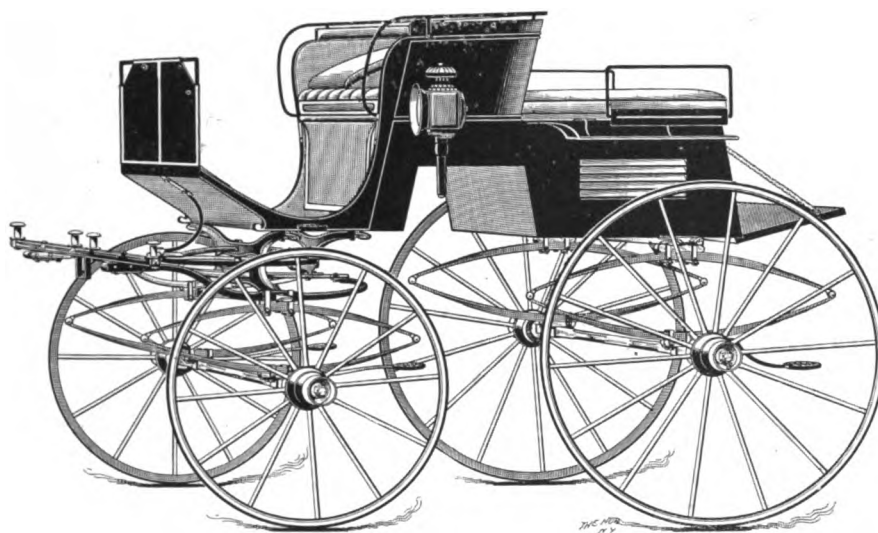
PLATE CCXVI. shows an unusually well balanced and neatly designed omnibus of the latest pattern. It is fitted for three horse team. It is provided with all the latest improvements and finished in first class manner. It is from the works of Willoughby-Owen Co., Utica, N. Y.

CUTUNDER STANHOPE.

(For illustration see "Latest Styles.")

PLATE CCXVII. shows a stylish stanhope built by the Groton Carriage Works, Groton, N. Y. This company are paying special attention to high grade carriages and as this illustration shows, they are well in the van in style, and their finest is of a high order.

Latest Styles. March, 1902

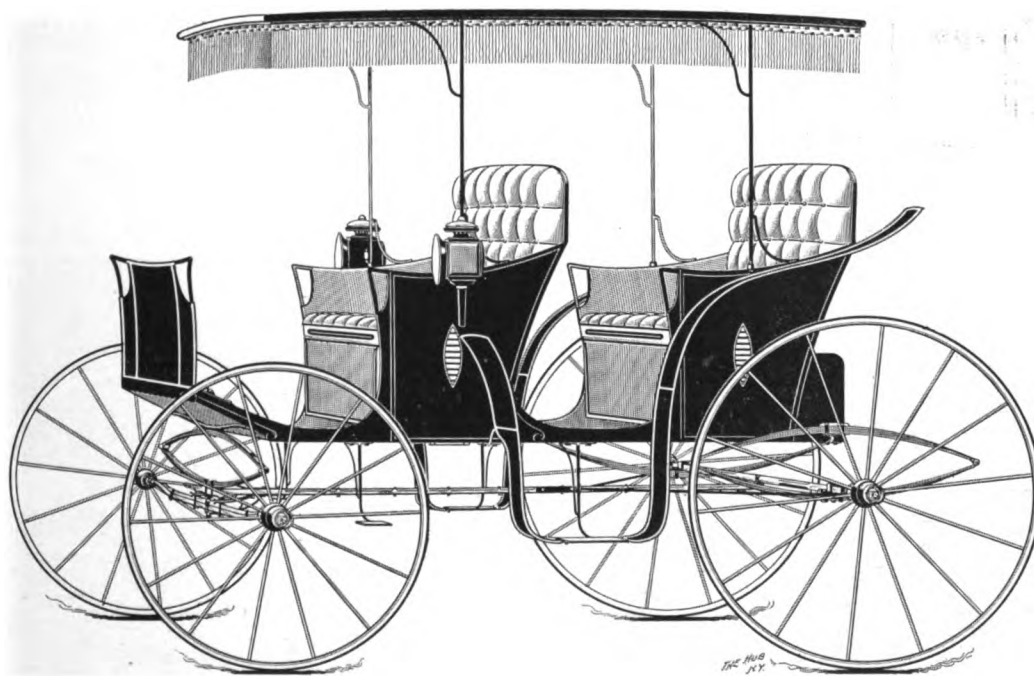


No. 548. English Four Wheel Dog Cart.

SCALE, $\frac{1}{2}$ INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$1.50.)



No. 549. Canopy Top Surrey.

SCALE, $\frac{1}{2}$ INCH TO THE FOOT.

See description under "Latest Styles."

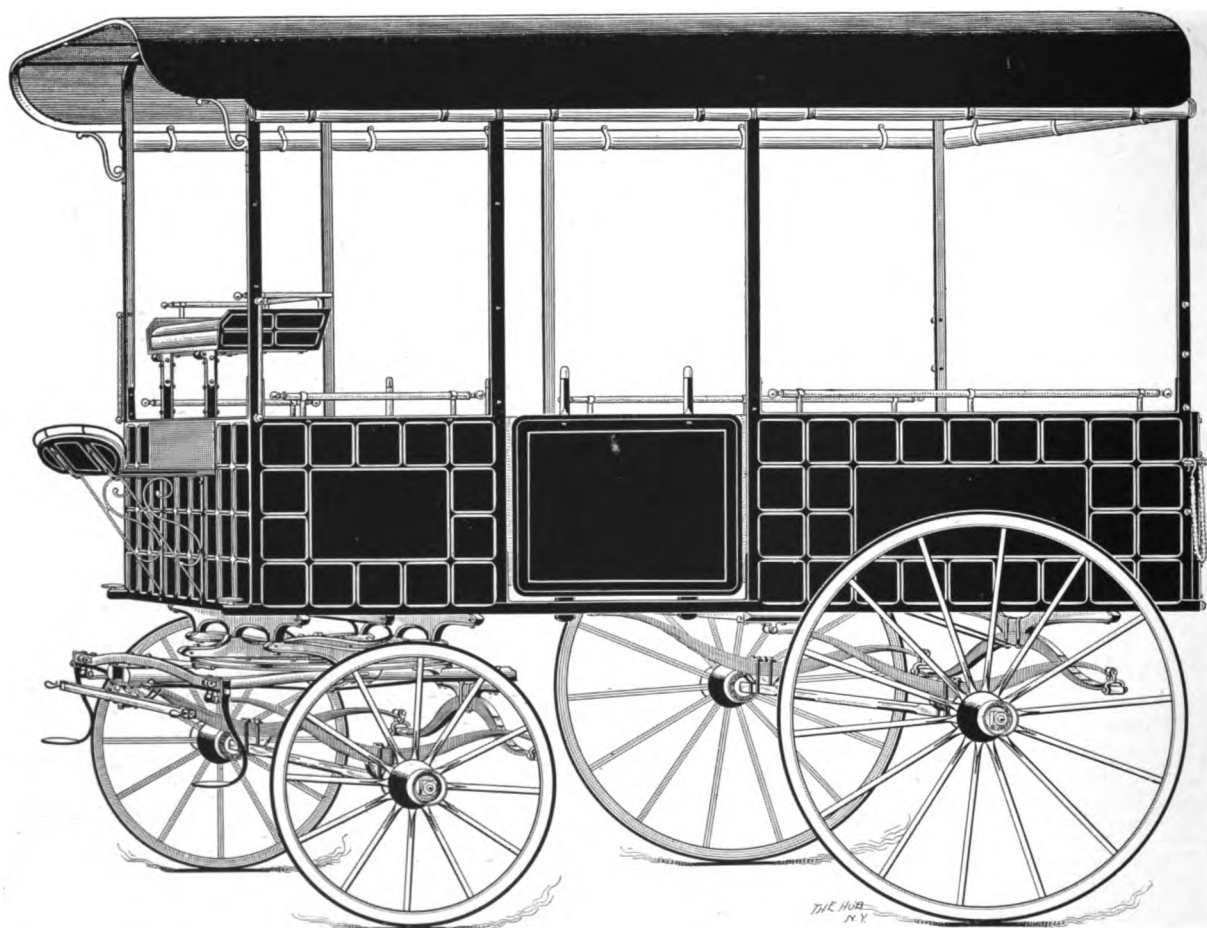
(Electrotype, \$1.50.)



No. 550. Confectioner's Wagon.

SCALE, 1/2 INCH TO THE FOOT.

See description under "Latest Styles."



No. 551. Furniture Truck.

SCALE, 1/2 INCH TO THE FOOT.

See description under "Latest Styles."

(Electrotype, \$2.00.)

Plate CCXY.
Elliptic Spring Buggy with
Child's Seat.
See description under
"Latest Styles."

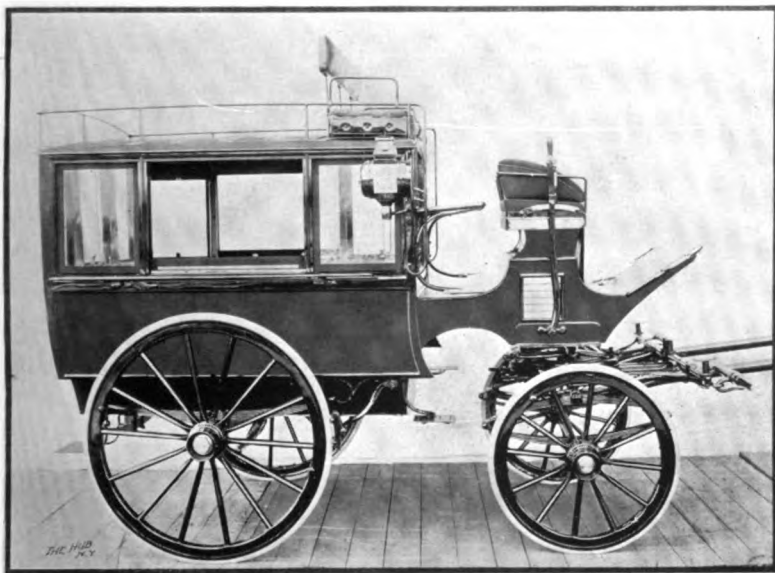
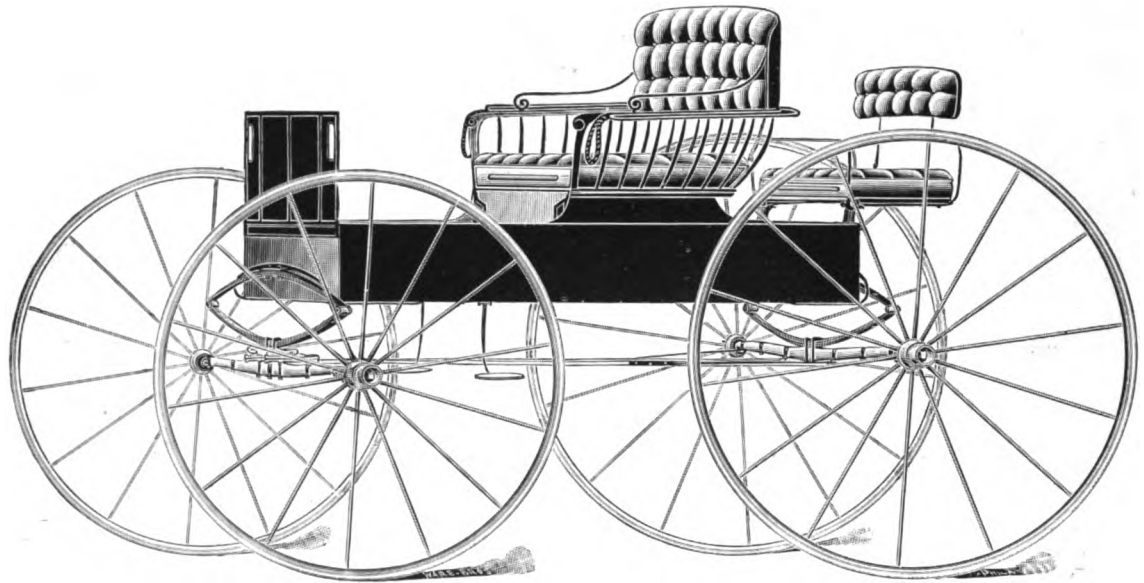
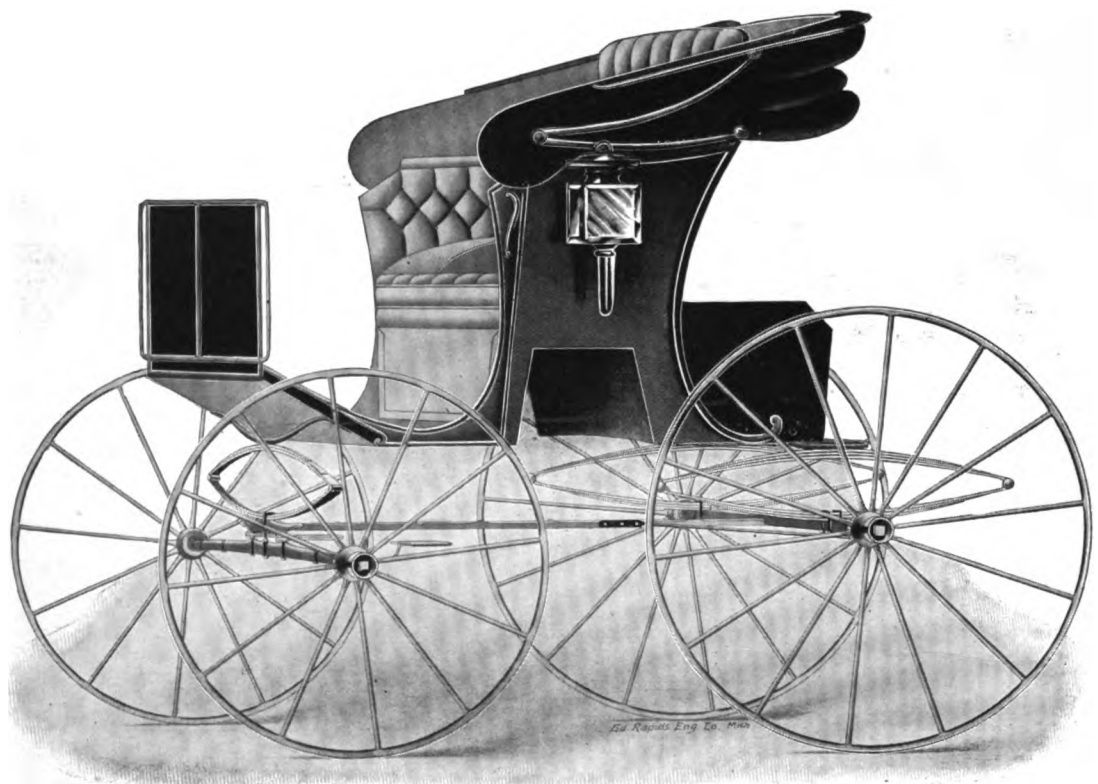


Plate CCXYI.
Omnibus.
See description under "Latest Styles."

Plate CCXYII.
Cuttingder Stanhope.
See description under
"Latest Styles."





Electric Vehicle Co.

Mark XXXV. Tonneau.

For description, see "Automobile Department."

Knoxmobile. Open for Four
Passengers.

For description, see "Automobile Department."

Knoxmobile. Closed for Two
Persons.

For description, see "Automobile Department."

Electric Vehicle Co.
Mark XXXI. Elberon Victoria.

For description, see "Automobile Department."

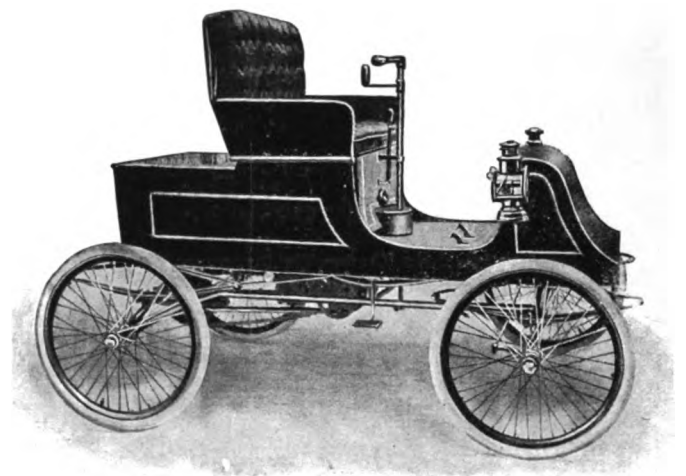




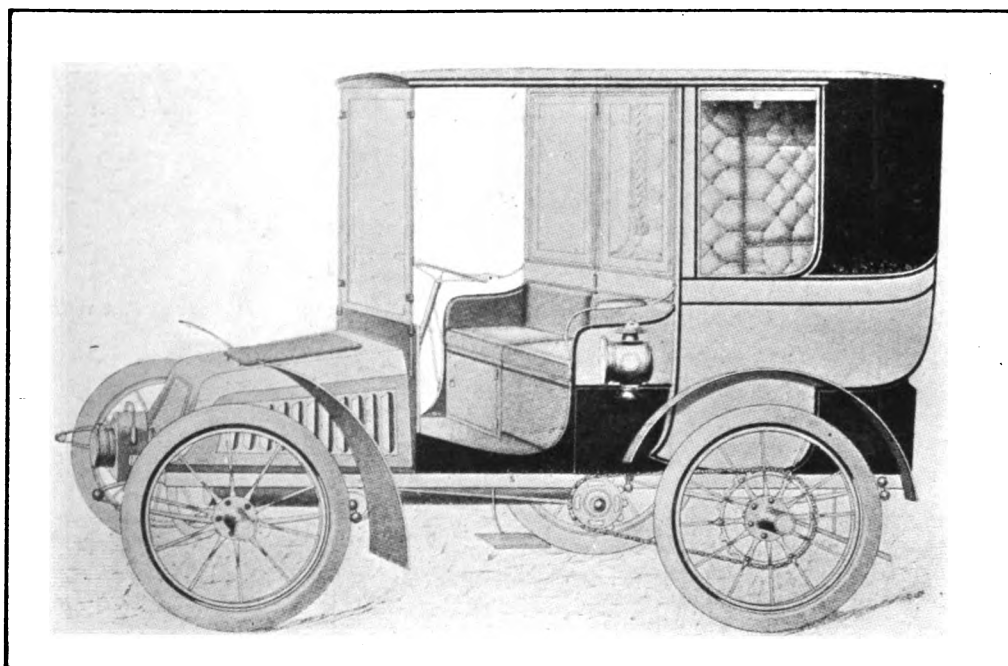
Three Wheel Automobile. Duryea Power Co., Reading, Pa.
For description, see "Automobile Department."



Duryea Four Wheel Automobile in the Snow. Duryea Power Co., Reading, Pa.
For description, see "Automobile Department."



Elmore Manufacturing Co., Clyde, O.
For description, see "Automobile Department."

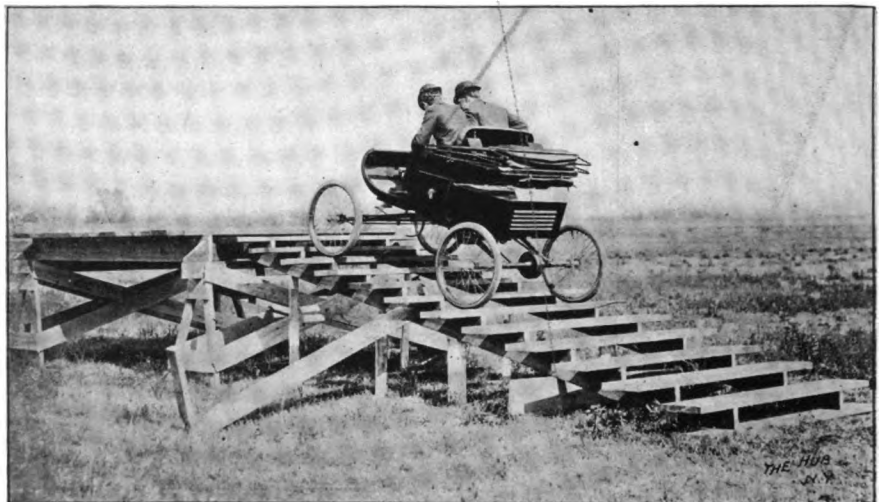


Automobile. From "Le Guide du Carrossier."
For description, see "Automobile Department."



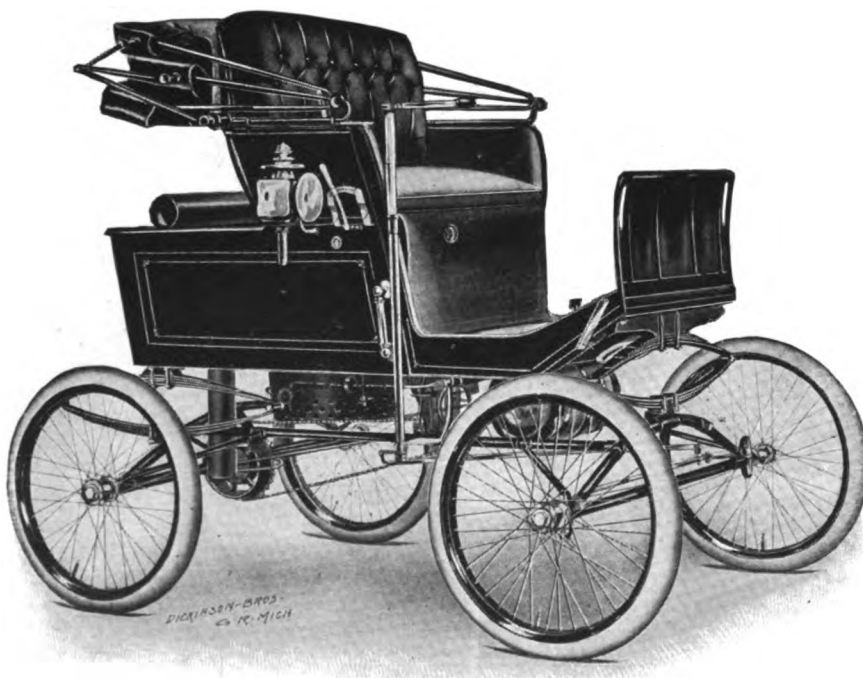
Oldsmobile. Standard Pattern.

For description, see "Automobile Department."



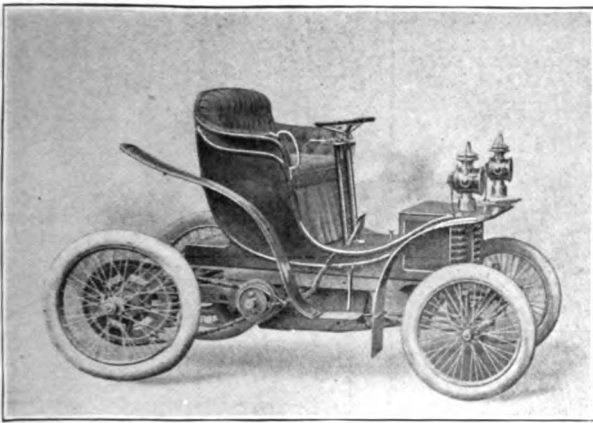
Oldsmobile Climbing the Stairs.

For description, see "Automobile Department."

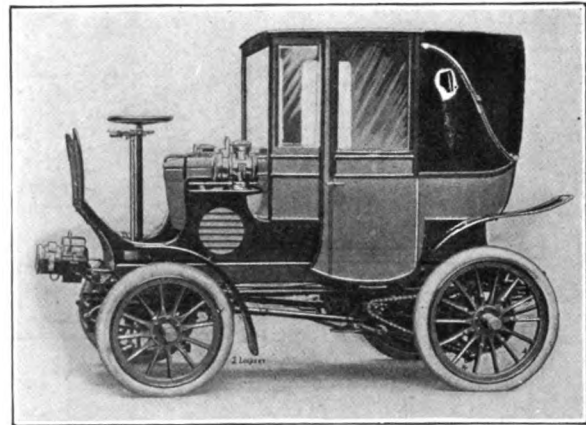


Conrad Motor Co., Buffalo, N. Y.

For description, see "Automobile Department."



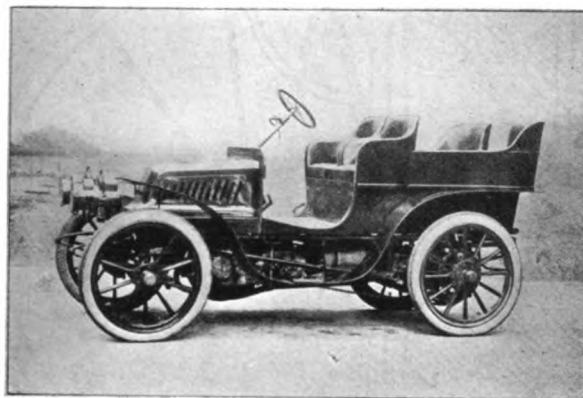
Vilain. Duke, Two Passenger.



Gobin-Brille. Landulet, Alcohol.

Automobiles Shown
at the Paris
Automobile Exposition.

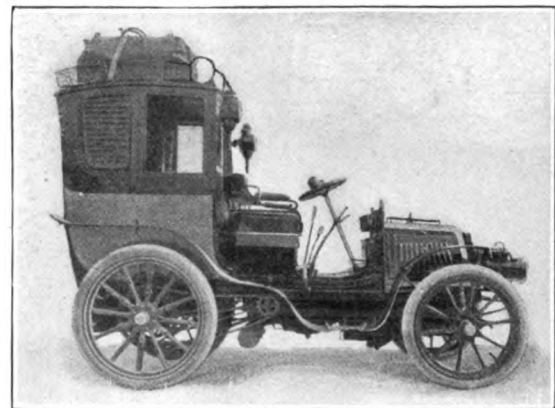
See Paris Letter.



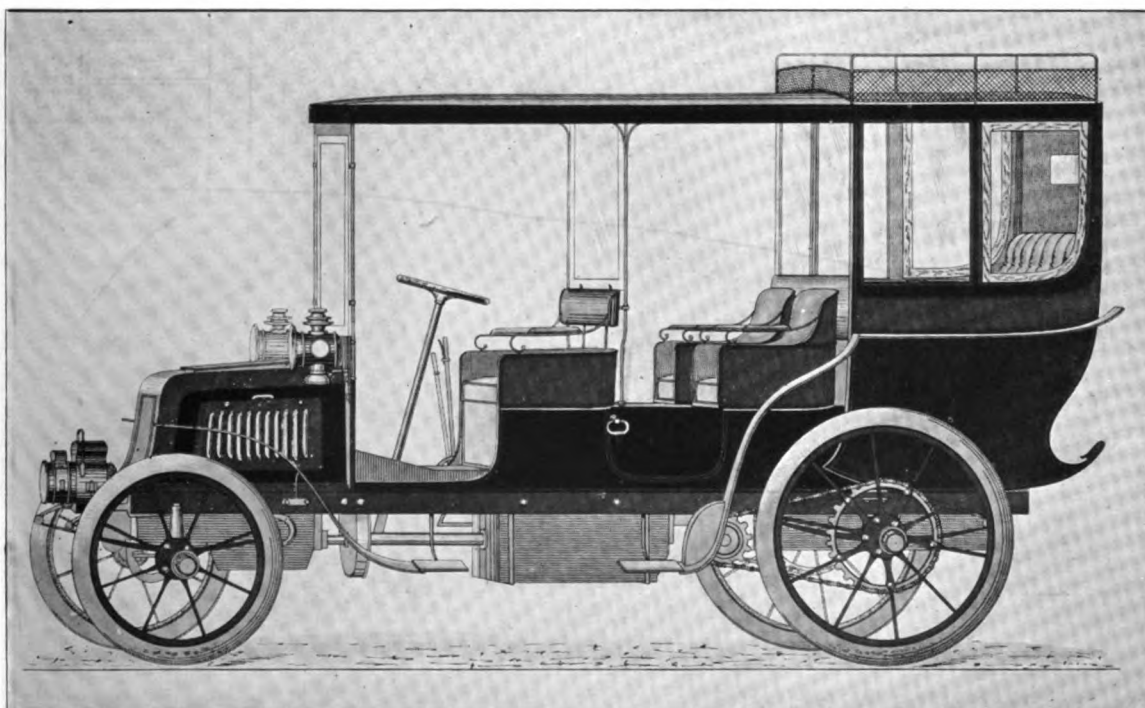
Naucke. Tonneau.



Bollee. Omnibus.



Panhard-Levasser. Coach.



Automobile From "Le Guide du Carrossier."

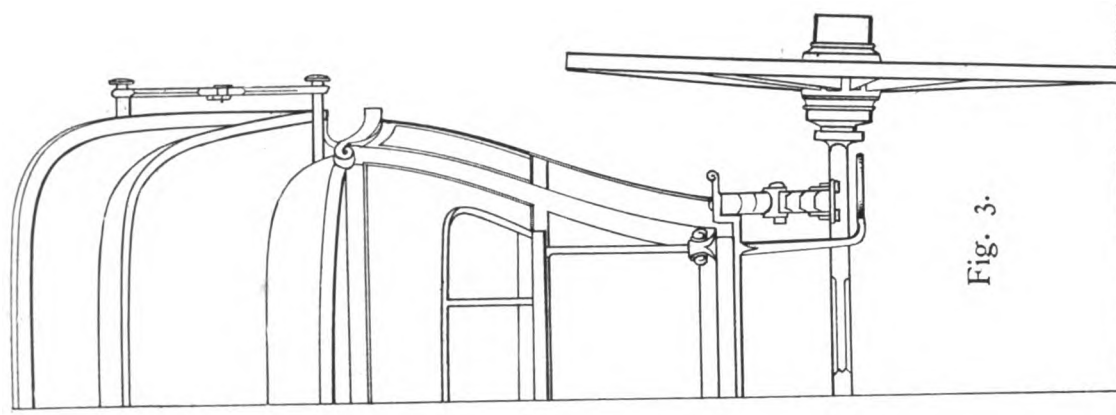


Fig. 3.

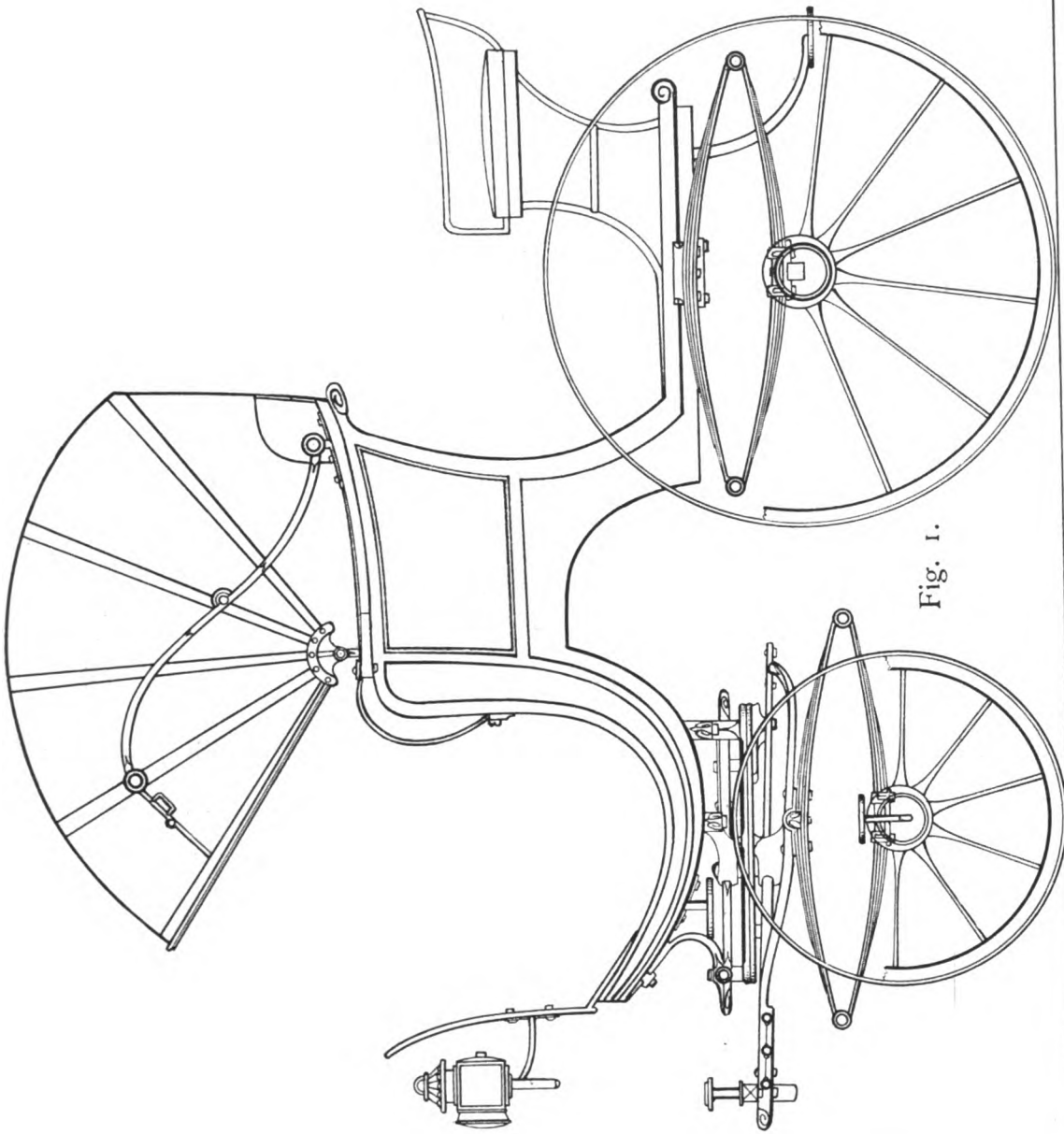


Fig. 1.

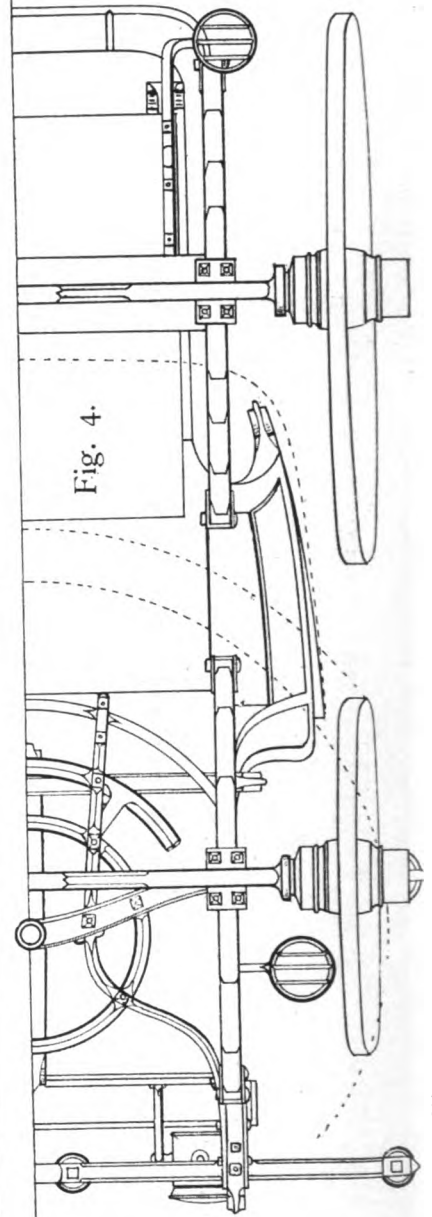


Fig. 4.

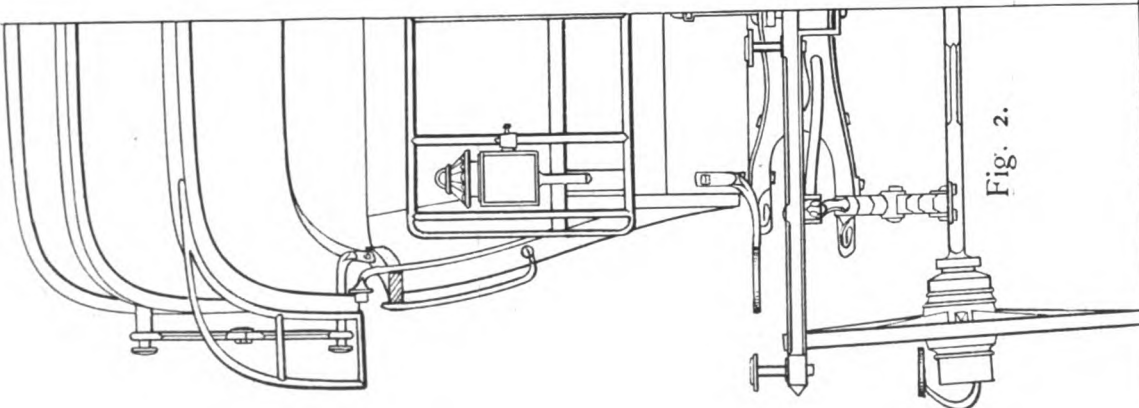


Fig. 2.

CARRIAGE TECHNICAL DEPARTMENT.

Comprising the Wood, Smith, Paint and Trimming Shops.

DESIGN OF A LADY'S DRIVING PHAETON.

Scale, $\frac{3}{4}$ inch to the foot.

(See Working Drawing on Page 540.)

THIS design of phaeton, as shown on page 540, is different to those we are in the habit of seeing every day, called "ladies' phaetons," with their low hung bodies, long coupled gears and long curved loops, with a low shallow poise, more suitable to the quietude of old age and a quiet horse than to the expert horse woman driving a pair of fine horses. This carriage is especially intended for the ultra fashionable, who can appreciate a smart equipage. It is in this class of carriage where the bold designer can find a field in which to work out his extravagant ideas, who could do nothing with a surrey or a buckboard, leaving these carriages to the gentlemen of the West, who can make a collapsible rig that will carry four or two, sitting either way, pleasing a class of customers who call for vehicles of a less artistic character than those used in our Eastern cities.

If we wish to improve the appearance of the ladies' driving phaeton so as to attract the cultured of our population, we must study the carriage from their views and not from the show room effect. We must study the appearance of the fully equipped vehicle behind a pair of trained, well harnessed horses, and it is for such that we present this carriage for two riders and a footman. A short axle at the front wheel will necessitate a long trace, a long pole and impedes the stride of the horse. The track brake and front should be alike; the springs should be in line, and equal distance from the axle collar. The body should be wide to correspond with its height and to give to the top a broad low appearance. If we desire to improve the top we must change the lines. The form of it cannot be improved with old methods. No design can be expected if we constantly duplicate those that are common and familiar. This top will look well on a full sweep victoria or cabriolet body, on a full round corner stanhope phaeton seat, but not on a square box buggy body. The arm rail to which the leather at the bottom is fixed is round, like that of the bow dotted in on the plan Fig. 4. The outline of this rail is also dotted down to show the idea. The inside design for quarters and back likewise call for round corners instead of an angular shape, and the whole appearance of the trimming, both inside and out, is to be round to correspond with the curve of the top in both directions. The corners of the rumble seat frame and the rail are also made round, as shown by plan Fig. 4. Attempts made in Paris and London to make a lady's driving phaeton in response to the demand were merely old styles of dukes, mounted higher and coupled shorter than before. The only claim for originality was either their shortness, that made them look too high, or their excessive height, that made them look too short.

In this drawing we have looked to the appearance when the top is down, as that is the way it will be used the most of the time, and the height will be correct when the weight is on the springs of the three riders. Canework on the seat panels seems to be a fashion with some builders, and on some carriages it is appropriate, but not on this, as a better effect can be brought about with a color contrast than with cane decoration. Blue panels, light blue pillars, black mouldings and black rockers with a light blue gear striped black, trimmings white cloth, will make an appropriate combination color for this carriage. White cloth for the rumble, seat rail covered with tan colored leather. The corner pillar must be painted on the back the same as the side, and also the side moulding, out to the scroll under the rumble seat, and also extend across the back. We can already foretell the beauty of effect which the upholstered in-

terior will have when the trimming presents a concave curve from the stanhope pillar around the whole broad seat and back to the other stanhope pillar. The corner on the inside must be blocked up to a concave curve, which form will accommodate the person more comfortably than if square or angular. Consequently the curve of the bow and the curve of the lazy back will carry the head lining around on a curve. The lining above the head will also be concave around the bow.

On the axle nut each side we place a round three bar step and one above it bolted to the rocker, forward of the axle, and set well out to the side for the convenience of getting in and out. We mount the body on four elliptic springs to a height of 32 inches above the floor, both front and back rockers being of the same height from the floor. We so set the curved rocker on the coach beds at the front that the weight will not depress this line below the top of the wheel. This gives us an 8 inch height of gear and an 8 inch spring, 16 inches, all unmounted on 28 inch front wheels; rear wheels 46 inches; length of carriage over all, 8 ft. 10 in.; distance between all, 68 inches; height, 7 ft. 10 inches; distance between axle centers, 49 inches; length of the body, 6 ft. 9 in.; width of body outside of arms, 50 inches; height, not including the lazy back, 34½ inches; size of rumble seat frame, 14 by 28 inches. Hubs, front, 6 inches; rear, 6¼ inches; length of hubs, 7 inches; points band for front hub, 2½ inches long by 4½ inches diameter; rear, 5 by 2½ inches; back band for front hubs, 7½ inch; spokes, 10 and 12, 1½ by 1½ inch; rims, 1½ inch deep, dressed for 1¼ inch tire. Axles, Collinge; front, 1½ inch; rear, 1¼ inch. Springs, front, 34 inches long, 8½ inches high, 1½ inch steel, four plates, Nos. 2, 3, 3 and 4; rear spring, 36 inches long, 9 inches high, 1½ inch steel, five plates, Nos. 2, 2, 3, 3 and 4. Size of fifth wheel, 20 inches; length of trace bar, 60 inches; distance between trace posts, 27 inches; Track, 4 ft. 6 in. Size of top, 48 inches long, 50 inches wide, 30 inches high above arms; head room under center bow, 3 ft. 9 in.

ABOUT ANVILS.

THE present method of making anvils as compared with the method of making them up to the first half of the century just past shows a very marked improvement. The old "Armitage" Mouse Hole anvil was looked upon as being the only anvil made worth using. Armitage was the maker's name and Mouse Hole the village in England where they were made. Mr. Armitage supplied the best part of the iron working part of the world with anvils. Anvils were then made in about eight pieces, the but and horn being jump welded to the body of the anvil.

Before proceeding at length we will denote the different parts of an anvil. A, the body; B, its face; C, horn; D, round of horn; E, square, tool or handle hole; F, round or punching hole; G, the but; H, the base. That point indicated by the dotted line K is denominated the waist.

Peter Wright, of Dudley, England, was the first to make the real valuable improvement in smithing, or forging anvils. His great achievement was the making of what he called a solid anvil. The anvil was made in two parts, the upper and lower. The face B, of steel, welded to upper section; then the final heat was taken and the two parts were welded at the waist. If the weld was perfect, that is, if there was no "oxidizing blast" to oxidize any particular or single space, and no slug adhering to either surface, laying the foundation for the inevitable future fracture at the waist, the anvil would last as long as strong arms could wield hammer or sledge.

There was but one concern, then at Attorney street, New York, that repaired anvils and vises, until about the early 60's, when James

Case, anvil maker, and his brother, William Case, vise maker, former employee of Peter Wright, came to New York and started in to repair vises and anvils, and to make vises after the Peter Wright solid box and thread patent, but patented in England only..

About 1868 James Case made a few anvils after the Peter Wright method, which found ready sale. For some reason, to the writer unknown, Mr. Case ceased making anvils and confined his business to the repairing of anvils and the making and repairing of vises.

During thirty odd years it was one of my duties to look after some fifty or more anvils, replace the worn out or broken with new ones, and to put the well worn ones out for grinding and tempering. I had but one anvil after the Peter Wright pattern—either a Wright or a Case—that broke anywhere else than at the waist, and that one was the breaking out of the angle of the but, formed from the round hole. Just how many parted at the waist I am not prepared to state. Perhaps half a dozen, more or less. I communicated or corresponded with Peter Wright's Sons and at their expense sent three anvils, broken at the waist, which they repaired gratis and paid freight both ways.

The weld at the waist varies from four inches by about eight inches up to two or more inches more in width to six inches, more or less, in length. There is no other ready method for making the weld than that of jump welding by impact, hammering, or by the pressure process, either of which ought to be competent to make a perfect union under favorable conditions, as previously mentioned in the present chapter, and thus make the anvil as solid at the waist after the welding as are the billets from which the upper and lower sections are formed.

At each end of the waist is a port, or porter hole, punched there while the anvil is hot at the waist, after the welding. The object of the port holes is for the insertion of the porters by which the anvil is manipulated. "Porters" with anvil makers serve the same purpose as tongs with smiths engaged on lighter work. Here, then, is a wedge on which to argue. Does the punching of the "port holes" create the shadow of a fissure which the continued heavy impacting on the horn or but, with heavy hammers, which would loosen or make space enough for the first formation of oxide, which substance would extend and exert its evil influence until the weld becomes sufficiently separated to create a vibrating action sufficient to produce crystallization and granulation enough to cause the completion of the fracture.

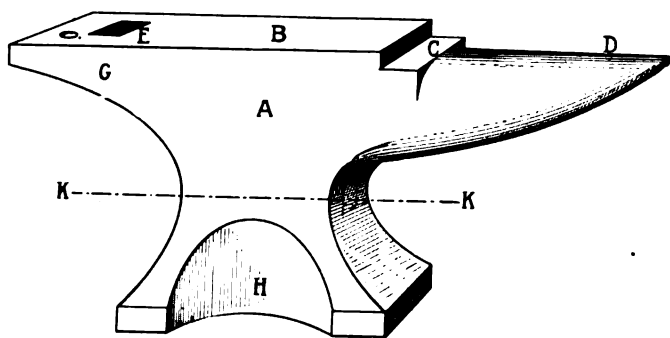


DIAGRAM OF AN ANVIL.

In all the waist fracture the writer has witnessed, after the final separation, traces of oxide were visible throughout both surfaces of the fractures up to the final fracture. Under the magnifier the oxide simulated carbonate of iron. In each case of waist fracture it started at the port hole. If the port hole is a free agent of fracture, would it not be well for anvil makers to devise methods of handling the big chunks without porter holes?

In these days of "up-to-date" matters, as they term it, with steel by the Bessemer process selling almost at iron prices, why not make the "big thing" all of one "chunk"—no waist or free welding? Chemical methods can be readily found by which a mild steel face can be made as hard as if of crucible steel. Then there is no welding anywhere. Bessemer steel makers will make any size "billet" asked for on receipt of price. The writer is satisfied that a solid wrought, mild steel anvil throughout, face and all, with face hardened, would prove a very superior anvil. Steam hammers and forge drops are powerful agents in the impacting of hot iron and steel. Steam cranes with claws would be able to pick up an anvil and throw it fifty feet in less than one-tenth as many seconds.

THE man who blushes is not quite a brute.—Young.

RUBBER TRACE KNOBS.

WHEN the trace knob, used on stiff draw bars of all kinds of pleasure vehicles, some forty-five years ago, the block portion setting below the knob, or button, was made of wood—and a very large percentage of those made at the present time have wood as when first introduced about thirty years ago—a patent was issued on a metallic one, filled with wood. It was not a success and consequently the wooden block holds sway, notwithstanding its liability to split and wear out.

There have been many devices invented and patented and called "easy starters," calculated to help the horse in starting, none of which have been accepted as being of value for coaches. The writer herewith gives something that is not patented, and one that will remain a practical trace knob or trace bearer, also an easy "horse starter" for years to come.

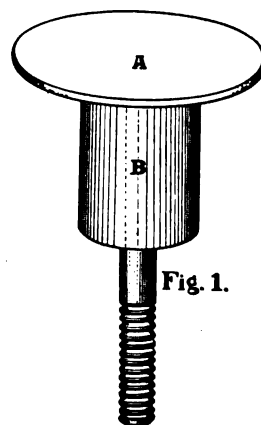


Fig. 1.

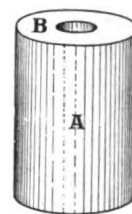


Fig. 2.

RUBBER TRACE KNOBS.

It will not split and will not wear out readily. Its elastic character will at the starting of the vehicle, by the horse, admit of its yielding enough to relieve the collar bearing of the horse. Its elasticity while the vehicle is in motion and going over obstructions or the pavement will be of constant relief to the horse.

The writer's inferences are that the cost will not be twenty-five per cent. in excess of the cost to produce the present ones made from wood. Fig. 1 presents the trace knob as usually made, A the top part, or, as is termed by some, the button; B is the wooden part, C the end of the bolt with thread, which is secured to the draw bar. Fig. 2: A, piece of rubber tubing; B, end of the same showing hole; C, for passage of bolt. Make the block $1\frac{1}{4}$ in. or $1\frac{1}{2}$ in. in diameter, with the hole just large enough for the passage of the bolt end. Have the usual heavy patent leather or harness leather washer below and above the ends of the rubber. The waste of some of the rubber tires of the day would just fill the bill. It also affords a chance for all the dealers in rubber wares for carriages. A request to all who put it on the market is that they call it "The Mosier Trace Block."

CHOOSING OF COLORS.

AFTER a long term of the subdued colors the eye is gladdened by the advent of fresher tints, and if they be not always so rich we all the more appreciate the rich effects of the darker shades returned to. By these occasional changes comparisons do not become odious, but our judgment and appreciation more keenly developed.

The lemon tinted running part of your buggy looks beautiful to you and your friends this season; next season it may be the most tiresome of colors, and you may chide yourself for having had it done in that shade, and many will jump to the extreme of adopting the black again.

The fact that we revert to the darker shades of colors only intensifies the growing tendencies of the American people for that which is substantial, pleasing to the eye and durable to wear. Latterly some light shades have been introduced in wagon work with rare success, and the tendency to pale and fade out is not marked. We allude to the different shades of lemon and orange. Now that these colors or shades are very popular we have ample opportunity of noticing their superiority in car and wagon work.

Wine color has been much adopted in car work, and during a certain period retains its own. Very well, but when its rich effect

goes, it leaves suddenly and becomes "grimy." So do certain greens, browns and reds. Many of the pale shades have their own way of wearing out or really leaving before they are worn out, such as pink and certain light greens and others well known to the practical painter.

The nice discrimination of the practical worker must be called into play on this subject in the selection of tints and shades for best results in display, wear and harmony. Now to the effectual protection of these shades, which is just as essential to the beauty and wear of colors as any other one part of the work—that is the varnish—in coach, car and wagon work. Finishers have not found it the easiest thing they know to cover their "pale painting" without subduing the richness of the work, with their usual qualities of varnish on hand, and a want for such varnish is often felt.

Body colors may be rendered transparent, or partially so, by using but little color to a large proportion of vehicle; but such glazing is of no value except to landscape painters, and not much to them. There is no difficulty in producing a perfect color by a glazing coat when the painter knows how to prepare the foundation colors.

The self-taught painter, supposing that all colors are used the same, may worry over his carmine or yellow lake, and wonder why they will not cover, and he may give it up in despair; but the regular vehicle painter, knowing what is demanded, proceeds with the glaze with as little concern as he would for a body color. Any body color which is to be used as the color proper should be fine, clean and laid on perfectly smooth. This being done places the painter in good shape, and using transparent color is merely the extra work of laying two or more coats of transparent color.

The glaze, as we may call it, may be put on thin and but one coat given, which is practiced when it is desired to impart brilliancy to the undercoat. Brilliant vermilion is produced by a thin glaze of carmine over vermilion, and the same method may be adopted with the yellow and green lakes. The common practice is to prepare the ground color so that it will closely match the tone of transparent or glazing color, as it appears when mixed or "wet up," for every color is slightly deepened in tone when wet, or mixed in oil, or varnish, but the glazing colors are capable of a wider application, for they may be painted in grounds wholly opposite in color. Thus, carmine may be glazed over lead color, black and also white, yellow, pale green, verdigris, blue, purple, violet and yellow lake. Verdigris and ultramarine blue may be glazed over about the same range of colors, but

tine, and allowed to dry. No amount of dusting, however carefully done, will remove all the fine dust and grit adhering to "rubbed out" rough stuff.

Munich lake is one of the most beautiful colors there is for carriage painters' use. It makes about as nice a job as No. 40 carmine if properly applied, and is considerably cheaper. At the same time it is one of the lightest of the lakes, strong bodied and very durable. Like all transparent colors it should be used only as a glaze over a carefully prepared ground, and various shades can be produced by varying this ground. In fact, the ground is what determines the color, and if that is not properly mixed and applied it is useless to attempt to get a good job of glazing. For this ground some use Indian red and black mixed to as near the shade of the lake as possible, but Tuscan red darkened with black is, we think, much better. The best plan of all, however, is to give one coat of either of the foregoing and one of carriage, part lake, lightened with either Tuscan red or with vermilion. This brings the shade nearer to the color of the glaze than any other mixture. It is well to have the ground dry with a slight egg shell gloss. It is not essential that it should absolutely shine, but it should not be flat either; just hard and solid.

The ground carefully prepared, applied and dried, proceed with the glazing. Add to the lake enough turpentine to break it up and then thin to working consistency with varnish. Good rubbing varnish will do it, as it sets quicker, but if it should set too quick finishing varnish will do. Apply (if on a gear) with a small hair brush, one spoke at a time. Flow on the same as you do varnish. Care should be taken not to touch the hub at the bottom of spoke, or felloe at the top, and not brush any more than is absolutely necessary to get the mixture on; then do the hub, and then the felloes, avoiding the same care not to overlap.

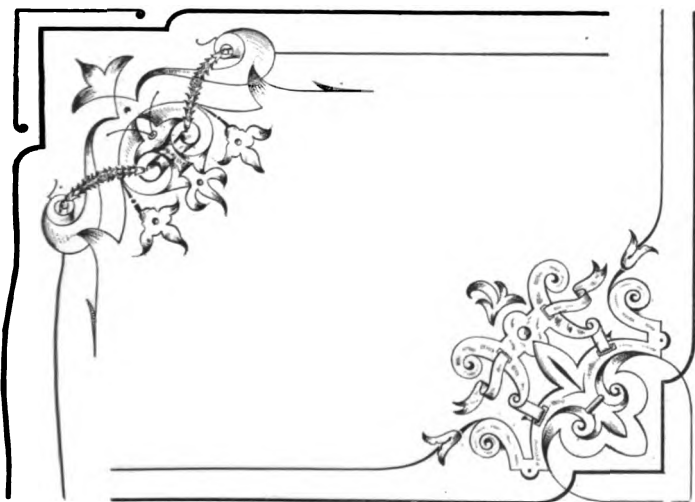
Purple lake is a color that is not used so much as it ought to be, for it makes a beautiful job when well put on. It is applied in the same manner as other transparent colors. One good ground is composed of Indian red and black. Another, and much better one, is composed of Prussian blue and vermilion. To get a purple job without using purple lake, the ground should be made of Prussian blue, white and red, and glazed with cobalt blue, with a little carmine added. This makes a splendid color, and for an occasional job it saves the expense of using the purple lake.

Olive green is another color that is very pretty. The ground should be made of Quaker green, with or without the addition of black, and glaze with yellow lake. A very good ground can be made of black and yellow or dark green and yellow. The writer can remember his first experience at coloring; how he felt sensitive about asking his elders how they mixed this or that, and too often he braced up and asked a question only to be snubbed, for the man was too selfish to advance any one for fear his chances would be lessened. This is all wrong. Why is it that elders want to keep apprentices down? They at one time stood in the apprentice's place and learned under a master painter. Why cannot every young man have the same chance?

JUST BEFORE THE FINISH.

"Just before the battle" has been pictured graphically in song and story as tense, expectant moments, during which men live over a lifetime of struggle and toil, of disappointments and successes. Such an incident has its counterpart cast upon a smaller plane of action in many carriage paint shops "just before the finish."

Great, almost infinite pains, have been lavished upon the carriage. The sanding, prior to the application of the priming coat, has been most thorough. The priming has been brushed well into the wood, or, to follow the lines laid down by our good friend, Mr. C. A. Willey, before the last convention of C. B. N. Association, rubbed in with a rag. The lead coats have been hand rubbed, the foundation of rough stuff skilfully laid, the surfacing has been perfected to the finest degree, the colors adjusted to an artist's brave turn of skill. The rubbing varnish coats have been placed and rubbed to meet the approval of the proudest chevalier of the trade, and nothing remains but the work of washing the surface and flowing the finishing coat. As before the battle so before the finish, the alert, brainy, cool-headed, keen, discerning man, be he officer, a common soldier in the ranks, or a wizard of the varnish room, is the one who summons the ablest forces to aid him in the work cut out. Dewey's clarion tones at Manila, "Keep cool!" still go marching on, and they have a direct application to the finisher in his final effort to accomplish an *édition de luxe* finish. If there is any one element in a finisher's make up



ORNAMENTAL STRIPING DESIGNS.

when so used they are better adapted to narrow spaces. Striping, ornamental and pictorial work, very light greens or such as are lightened with white lead, should be laid off lengthwise to get their true shades, and the corners should not be cross brushed, else they will show two or three different shades.

For finishing carmine gears, striped fine lines of black, a little touch of carmine should be added to the finishing varnish; this gives additional tone, and for finishing rail body of express wagons a bear's hair brush should be used to lay the varnish and a bristle to wipe up with. The bear's hair being soft, you can get around into the corners expeditiously without kinking the hair. The bristles under the same conditions are very liable to go "wild." After dusting off panels preparatory to laying on color it is a good plan to rub off all over with a linen rag which has been steeped in varnish and turpen-

that contributes more powerfully to success in finishing than this habit of keeping cool at a critical time, we have yet to discover it. As a rule the cool headed finisher is skilful all along the line of his specialty. He is ready handed, ready witted, resourceful, a campaign manager unacquainted with the word defeat. He is rigidly exacting in his attention to details. The traditional spook of the varnish room, armed with horns, hoofs and hot shot, hath no terrors for him. To what Shakespeare has called the "infirm practice" he is a total stranger.

To such a finisher the final steps leading up to laying the finishing coat, while justly important, are not burdened with manifestations of nervousness or timidity.

Working up to one's best level is the full measure of the finisher's responsibility in the matter of any work before him. Having accomplished all that a high grade of skill is capable of, he is content to let the varnish do the rest.

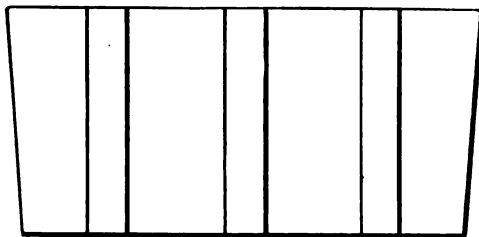
The final washing of a surface "just before the finish" cannot well be overdone. Or, in another word, it cannot be done too well. The washing of a plain panel is simple enough, and appears to be free from difficulties, but there is something more than a "knack" in keeping the chamois skin, the sponges, the pail and the water spotlessly clean and ready and fit for the finest surface. All this is an essential part of the washing up process. Around moldings, medallions, in novel conformations of panel work, etc., the exercise of most circumspect attention in washing is of the first importance. The washing up with all its details and particular ends has a direct connection with maintaining the varnish, the varnish room and its appurtenances, in a condition specially adapted to developing the best that is in varnish.

The skill of the finisher from Brewster's, from Kimball's, or from a dozen other famous American vehicle establishments, is unequal to the task of developing the beautiful side of varnish in a room inadequately ventilated, or a bit too cool, or a trifle too warm, or out of condition in other respects. Varnish with all its virtues, and cast in the form of twentieth century varnish making progress, still remains an extremely sensitive and highly delicate material. It cannot be otherwise and fulfill its mission abroad a vehicle surface. Now and then you may hear the gentlemen of fiction exploit the varnish that can be successfully used in a varnish room floating two inches of water over its floor space. This is merely a case of imagination gone mad, and has no actual connection with facts. The knight of the black art is a stupendous misfit in the varnish room.

A correct adaptability of varnish, surface, varnish room and varnisher are as absolutely needful today as at any previous time in the history of varnish room achievements. The varnish must fit the surface and the surface the varnish, and the room and its conditions must fit both, and a master's skill must reign over all.

PANEL CARPETS.

THE accompanying illustration shows an economical plan for utilizing pieces of rug carpet, to form them into a neat shape to cover the panel under the seat. The panel can be divided off into four or five spaces, the pieces of carpet sewn together with an over-stitch; pieces of wood moulding 2½ in. or 3 in. wide and ¼ in.



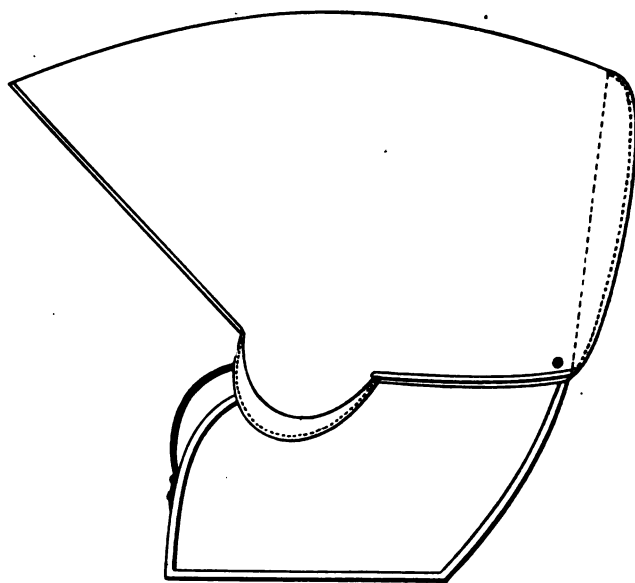
PANEL CARPETS.

thick, with the edges slightly rounded off to a smooth surface; cover the mouldings with the same material the body is trimmed with; place the center of the moulding over the seam and then tack the carpet to the moulding on each side of the seam. The idea advanced here suggests other neat ways to utilize waist pieces of rug carpet into panel carpet.

"When Fate gets a man on the down grade it seems as if everything were specially greased for the occasion."

SIDE VIEW OF A VICTORIA TOP.

THE illustration of the side view of a victoria top, Fig. 1, shows the shape of the cod piece and the quarter corners. The cod piece is known as the "crescent"; it is almost a compass sweep. The dotted lines around the cod piece and the quarter corner indicate stitching lines. The plain line above the dotted line in the cod piece is a crease line made with the tickler. Reinforce the cod piece with a thin lining piece pasted one-quarter inch around the edge. After the edge of the cod piece has been stitched, it must be neatly trimmed off near the stitching, round the corners off with the edge tool and sand paper



VICTORIA TOPS.

and make perfectly smooth. Before the quarter corners are pasted together a thin strip of oil leather one-half inch wide, with one edge skinned off, must be pasted in between the two leathers. Stitch the corners and the edges and round up in the same manner as with the cod piece. Make the front balance without binding, also the skirting around the driver's seat.

* Some may think that this is a cheap and quick way to do the leather work on a victoria, but this is not so, for it requires skill and care to do this kind of work. The edges must look like a part of the surface just as much as the edges of a first class set of harness. For durability and neatness it lays all over the very best of bindings.

A SUGGESTION TO THE TRIMMER.

If a man works in the smith shop and something occurs to him which would be of value to the trimmer, there is no real good reason why such information should be withheld. It is by suggestions and expressions from one to the other that the world advances and progress is made. The writer is a member of the smith shop fraternity and he suggests the following as a valuable novelty to the trimmer:

The novelty has to do with the head lining of all "falling" carriage tops such as are used for pleasure or the conveyance of passengers. Since the invention of the falling top it has been the custom to place the leather on the outer section and the head lining on inner section of the bows. In order to hold the head lining in position and to keep it from sagging, webbing of some proper fabric is secured to the bows, usually selvage from the cloth of which the head lining is made is tacked to one of the edges of the bows. To this web the head lining is secured by blind stitching if the cloth is strong enough to hold up. If not, then silk of same color of cloth is used, which may be sewn through the cloth at proper intervals and at places blind stitched.

The head lining secured in this manner leaves a space between top leather and head lining, which shows very perceptibly by its open on the sides, at the inside and outside valance. This often affords a grand entrance for the moth fly or "miller" to enter and deposit her eggs which, after hatching, do so much damage. The eggs are deposited out of sight and may not be seen and destroyed. When the ravages of moth present themselves in holes then, and then only,

are they discovered. By this time they have entered the cocoon state and have hidden away where they cannot be found. The foregoing is a very excellent reason for pressing the change and one of the causes which has led to this improvement.

The space between top and head lining permits of a continuous "flopping" of the head lining while the vehicle is in motion. The head lining also disguises or hides the bows, causing many bumps on the heads of the uninitiated. The space between the head lining and leather permits injury by tearing holes. It is a frequent unpleasant sight to see head linings which are either torn, ragged and gaping, or which have been torn and badly or poorly repaired, chiefly from the fact that the position which has to be assumed by the trimmer in repairing such rents is tiring, awkward and too unpleasant to permit of making or doing a first class job.

The writer does not wish to dispense with the head lining. His object is to place it where it belongs, preventing it from becoming a moth, disease and dirt breeder.

To begin, we will make the center bow between the valances the same as Fig. 1, cross section of the bow, A, top and bottom sections of the bow, slightly rounded or oveled throughout, to prevent the wearing or cutting of the material on the upper side and to prevent the head of the occupant hitting against the otherwise sharp corners.

Fig. 2 shows a cross section this time of the front bow, A, rounded or oveled portion of the upper side, B, the lower portion also rounded or oveled. C shows point of the bow to which the top, head lining, valance, etc., are secured, and is left the full depth for that purpose. D is the inner edge, as it is narrower because of the rounding same as in Fig. 1. Fig. 3 is a cross section of the head bow, A, upper section rounded as per Fig. 1. B, lower section, also rounded. D the back part to which is fastened the top, head lining, back stags and curtain and, like the front bow, is left full depth for that purpose. C is the front edge of the bow and is narrower than D because of the bounding process.

The next step is to cover the round as usual, the lowest section of the bows, no matter whether for close or open top, cabriolet, surrey or other vehicle and cover with leather, as usual up to and above the valance line. Between the valance line just "scrim" the bows and rub fairly smooth, then wind with cheese cloth, closely and compact and fasten with 1½ ounce tacks at sufficient points on the front edge of front bow, back edge of back bow and at either edge of center bow. Then cover bows with cloth, fasten front and back with proper size tacks on front of front bow and back of back bow. Sew the cloth on to center bow, with seam on the back edge of the bow—when the whole thing is prepared for the leather and cloth. To the side seams of the leather (inside of course) may be stitched a strip of good strong selvage stuff, same color as head lining, the leather being complete. Next prepare the head lining by making it to suit the top; tacking with strong silk or twist to the selvage at such points as are necessary and secure to the valance and to the front and back. Be sure that the fit is perfect. Allow the edge of the hem to go above the leather edge of the valance full half inch to prevent catching the dirt. When hemming and stitching the leather valance secure with lower line of stitching a strip

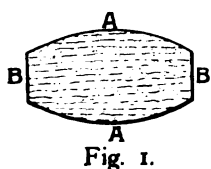


Fig. 1.

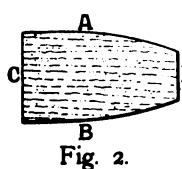


Fig. 2.

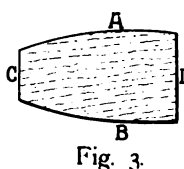


Fig. 3.

of selvage or very soft enamel leather, on to which to stitch the cloth part of the valance, for which use a strong silk "twist." Be sure the cloth is well "pulled" (shrunk) before using.

Made in this way the top is artistic and is better in every way. The moth fly is guarded against to a certain extent; dirt and dust have not so many places in which to settle. In this case of close top the bows form excellent hand rests. If a glass frame is used, it can be finely finished on the inside, and in the event of a broken glass neither leather or cloth requires to be strained or torn.

SOMETHING ABOUT BOW SOCKETS.

THE "Bow Socket" fills quite an important place in the economy of the trimming shop, and ought to be produced in such a manner as to prevent bending at the back prop. All who ride in carriages do not know how, or care how, to let down falling tops. More often

than otherwise they let it down with a run, which causes the back bow to hit the prop with a thud which in due season makes it appear as per Figure 3 A, lower end of bow. B, upper end C, where it strikes the prop and gives it the shape shown by the illustration.



FIG. 1.



FIG. 2.

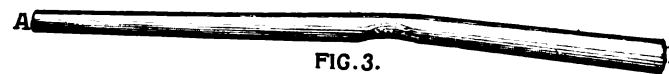


FIG. 3.

Figure 1 shows a section of the bow A the lower end, B, the upper end when bow socket is normal. To avoid result such as shown by Figure 3, we would suggest that the back bow be made of heavier metal or similar to Figure 2. A, section of lower end, B, section of the upper end, C shows swell exaggerated at the point where the bow socket comes in contact with the prop. Such construction by the maker would be a boon to the coming builder.

DEPOT WAGON BACK AND DOOR.

A NEAT design for a depot wagon door is shown by Fig. 1. It is neat and inexpensive and may be used for the back as well as the doors of a depot wagon. Make the back up on a frame; the cover

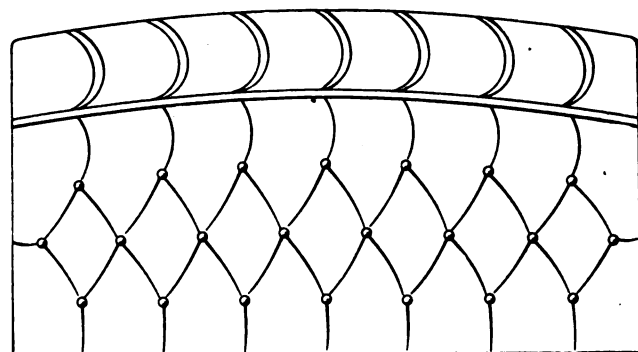


FIG. 1. DEPOT WAGON BACK AND DOOR SQUAB.

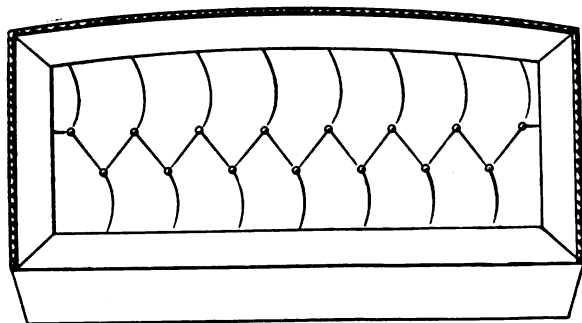
over the frame is reinforced around the edges with buckram. Lay off the rough lining for a plaited roll at the top, and seven diamonds across the center. The diamond squab and the plaited roll to be joined together with seaming lace between. The fullness for the diamonds should be 1 inch crosswise and ¾ inch in the length, with a part of the fullness sewed out on the machine. The cloth in the top roll to have 1¼ inch fullness between each space. Fold the cloth on the face side and ⅝ inch is stitched out on the machine. This allows a plait ⅝ inch wide. In sewing the roll cloth to the seaming lace, it must not be strained or the plaits will gape.

BACK FOR THE FRONT OF A COUPE ROCKAWAY.

FIG. 1 illustrates a neat design for trimming a back for the front of a coupé rockaway. Make this on a rough lining of leather, straw board, or three ply of buckram well pasted together. Space off the border roll 2½ in. Lay off the space between the roll in points and rolls. Whatever material is used for the front, whether leather, whipcord or cloth, the fullness between the tufts must be the same—⅞ in. fullness in the width of the point rolls and ¼ in. fullness in the length of the points. After the design has been marked off on the rough lining tack guide strips on the inner edge of the roll mark, made of thin pieces of wood.

In tufting the back a little care must be used not to draw the tufts in too tight or there will be loose places in the points that will be hard to work out. In working up the ends of the point rolls, a

clinch tack at each plait will be sufficient to keep the hair from the edge of the guide strips. Cut the border roll scant in length so as to draw tight to the corners, which are held with clinch tacks. Tack thin wooden strips similar to the guide pieces along the inner edge

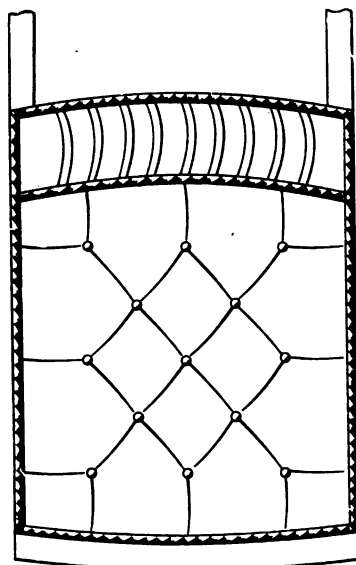


DESIGN FOR INSIDE FRONT OF BROUGHAM.

of the roll firmly against the guide pieces. Fill the roll well with sheet wadding. Sew the plain piece at the bottom of the back to the edge of the roll with a long back stitch, the piece to be turned over and pasted to the back of the rough lining. Finish the sides and the top of the back with seaming and pasting laces.

SASH DOOR FOR DEPOT WAGON.

THE illustration Fig. 1 represents a neat and cheap design for trimming the door of a depot wagon. Make up the lining on a stiff, rough lining, spaced off for four full diamonds, with a plaited space above. Give the diamonds $\frac{3}{8}$ in. fullness each way, between the tufts; fold



SASH DOOR.

the goods on the wrong side along the tuft lines and stitch near the edge of the fold. The top space should have one inch fullness at each line. Fold the goodse on the face side and stitch out the inch fullness which forms the plait. Finish the edge of the door with pasteing lace.

FUR ROBES.

THE variety of fur robes is such that all tastes and purses can be satisfied. The great demand this winter opens the market for an unusual demand during the coming season. The choice robes are largely in dark colors—black and two shades of brown—the darker being seal brown. Made up robes of choice high priced furs are mainly for lap robes. They are light and extremely rich in appearance, the linings being of the finest cloths. The prices prevent them reaching the general market, but in all large cities there is a moderate demand for these, but it is the medium and low grades that find the buyers in every market. These are made from almost all kinds of animal skins, from the cheapest to the best, and from natural colors and dyed lines with fine material and cheap goods. The most notable

are those of goat skins, four or more being required for one robe. They are made up in sizes from 48 x 60 to 60 x 70 inches. They are lined in printed felt, plush and other fabrics, with single and double borders, plain gray and black. The grays are mostly pieced in order to give the desired stripe of dark color and its shadings to the fur. The Bishop process, however, gives this result by dyeing, and the skins are uncut.

Brown bear robes are popular. They run in sizes from 54 x 60 to 60 x 70 inches in regular lines. These are lined in beaver and plush, and finished with double borders. Another robe is the cub bear. This runs in sizes the same as the brown bear, but in less variety. These are lined with plush and beaver, double and single bordered. An extra quality has a fine beaver lining and extra quilted border. Dog robes are comparatively new to the market. They are made of two or more skins of Russian dogs, some being so dark a brown or black as not to require being dyed. These are extra strong and warm and present a fine appearance; beaver and plush are used for lining, and the borders are doubled or fluted. The grades are the black dyed, in two qualities, the dipped and topped natural, and an extra grade of natural black or brown. All are lined and are bordered in different styles.

The kangaroo is one of the softest and most pliable of robes for carriages. They are put on the market in an attractive manner and meet with much favor. Among the robe manufacturers are John Ruszits Fur Co., of New York City, who manufacture all kinds of robes for carriages and sleighs as well as fur robes and gentlemen's furs. Another is the J. H. Bishop Co., of Wyandotte, Mich., who make the Twentieth Century Bishop robes from whole goat skins. the only manufacturers of uncut goat skin robes, their skins being dyed and then finished up.

All the small animal robes, such as raccoon, coney, muskrat and others that are designated by all kinds of fictitious names, are lined. Many are colored, others made up to match shades and lined with materials to suit the grades. These fill an important demand and are, because of price, good sellers.

HOW TO WIN TRADE IN FRANCE.

I AM continually receiving letters from merchants in the United States, requesting names of dealers in this consular district. I have answered hundreds of such letters, with, I am sure, very little definite result.

The inquirers do not realize the obstacles to transacting business with the foreign merchants by correspondence. The difference in the money, in the measures of quantity, and the important matters of duty and freight are not taken into consideration.

The merchants of an inland city like Rheims, with no port of entry, who know nothing about custom-houses, will not take the trouble to translate English letters into French, make the calculations necessary to turn dollars and cents into francs, or English measures into French equivalents, and find out how much the freight and duty will be. It is much easier for them to buy from some distributing center in France, where there are houses equipped to do all this, which have competent salesmen who travel all over the country showing samples, and prepared to state, not the price in dollars and cents free on board in New York, but just the sum in French money the merchants would have to pay for the goods delivered at their stations.

If you are not proposing to send competent men on your own account to canvass France, select the most capable man you can secure and have him go to large distributing centers, like Paris and Havre. There, he should interest merchants in the hardware line who have salesmen and agents all over France. You should try to have every town and village in France visited by active salesmen speaking the French language, and carrying samples of your goods.

He who would sell goods in this age of competition must do so by soliciting trade—that is to say, he must have competent agents to send directly to the buyer, or he must pay a commission to an agent who has the equipment to do so.

The merchants of the United States who have established a trade in France have accomplished it by opening general agencies at important points; and these merchants, who are doing a large business, will not sell goods except through their agents.

Selling goods directly by correspondence, thus avoiding all commissions, is plausible in theory, but does not succeed in practice.

WM. A. PRICKITT, Consul.

Rheims, October 15, 1901.

J. L. H. MOSIER IN HIS "DEN."

THE illustration shown herewith is a half tone reproduction from a photograph made of Mr. J. L. H. Mosier in his "den" at the time he was superintendent of the blacksmith department of the carriage house of Brewster & Co., Broadway and Forty-seventh street, New York City. Mr. Mosier has in all probability contributed to trade



JOHN L. H. MOSIER.

journals more information of value to carriage smiths than any other one man, and he finds the field as prolific as it ever was, and is now a regular contributor to THE HUB's columns. Through Mr. Mosier's inventive genius very many valuable improvements have been given to the carriage trade. In presenting this illustration of the veteran smith in his "chair of state," surrounded by materials of his craft, we have added one to the art pictures of the smith shop.

CEREMONIAL CARRIAGES.

(THE HUB's English Correspondent.)

THE use of wheeled vehicles for ceremonial purposes is probably coeval with the invention of them, and they have been used for upwards of seven thousand years in Egypt and the eastern cities of Babylon and Nineveh, as shown by recent discoveries and records in stone and clay. Probably in no country are ceremonial carriages used to the same extent as in England at the present time. The recent ceremonial opening, by the King in person, of the British Parliament was an occasion when a display was made with some of the state and ceremonial carriages, which are likely to be seen frequently during the present year. It is necessary on these occasions that sightseers should be early astir, and although the arrival at Westminster Palace was timed for five minutes to two o'clock, ten in the morning found the route already marked out by policemen and dotted with expectant sightseers. From then every half hour brought a change in the scene, and fresh arrivals of sightseers and officials. At that early hour vehicles began rapidly to arrive with those who were about to take part in the day's proceedings, either as legislators or spectators. Even in this respect the democratic character of the Britisher was displayed, for his choice of vehicle to convey himself and his belongings to the scene was as wide as possible.

The ubiquitous hansom drove up indifferently to the House of Commons and the House of Lords; the "four wheeler," of humble aspect and useful qualities, conveyed distinguished strangers and plain M. P.'s; silent motor cars, in gorgeous colors, within their closed and curtained hoods were bright with colors and jewels; town broughams, station broughams, victorias, landaus of all styles and ages and methods of suspension, even four wheeled and two wheeled dogcarts conveyed their owners with their families to the stately portals of the palace of Westminster. Many official persons who are not members of either of the Houses of Parliament attend on these occasions, and require carriages for their conveyance, and amongst these the representatives of foreign powers at the Court of St. James, to give them their full title, are of the greatest consideration.

The absence during recent years of frequent ceremonial processions in London, and the general distaste for a lavish outward display, has had its influence on the art of the coachmaker, and many of the ambassadors drove up in their ordinary carriages, distinguishable only by the colored cockades on the servants' hats. To these there were exceptions. The Turkish ambassador used his dress coach, a large full quartered canoe shaped coach, on double suspension, with hammercloth covering the front seat. On the door and lower quarter panels were emblazoned in their proper colors the Turkish arms, and the crescent and star, and the ambassador's orders and decorations; on the upper quarters the crest in metal was affixed close to the roof line; metal beading outlining the body and enriching the lines of the panels and doors. Evidently the Turkish government is delaying any special preparations of the coach of its representative until the coronation ceremonies commence.

Many other dress coaches and chariots had been specially prepared for the occasion. Deep orange, light lavender, blue, green and yellow were amongst the colors; all of them richly decorated with the owner's arms emblazoned on the panels, and with servants in appropriate liveries on the "hammercloth" and "standard" boards behind.

The Lord Mayor of London was there in the gorgeous state coach which has been specially prepared for his use. This is a very handsome equipage. A state carriage some hundred and fifty years old is in use every year in the annual procession on the 9th of November, and it does not often appear at other times, but the Lord Mayor has a second state coach which, during the greater part of the year, is in daily use. This year the Lord Mayor has had a specially fine carriage prepared, as he is to take an official part, representing the city of London, at the coronation. This state carriage is a fine canoe shaped seven glass coach, on double suspension with hammercloth and standard boards behind for the footmen. The panels have the city arms and those of the Lord Mayor properly emblazoned on them. Four very handsome lamps are placed, one at each corner of the carriage, and the edge of the roof is surmounted by a fine pierced metal cornice.

The members of the Royal Family drove up in carriage of all sorts and in no regular order, although they are entitled to a military salute and a few bars of the National anthem by the band, none but the heir apparent had any military escort. The aged Duke of Cambridge used an old fashioned dress coach and several other members of the family used dress coaches. The Prince of Wales used the "Irish coach," as it is called; a very handsome dress coach, which was built in Dublin by Messrs. Hutton & Co. in 1853 and exhibited at the Dublin exhibition. This coach was altered and embellished about twenty years after by Messrs. Thrupp & Maberly and used by the late Queen Victoria at the opening of Parliament in 1876 and on subsequent occasions. In the King's procession the great state coach was preceded by five dress landaus, which have recently undergone renovation at the hands of His Majesty's coach makers. These carriages, which are very large, are not new, some of them having been built in the early years of the reign of Queen Victoria, and one of them is said to be about one hundred years old. These landaus have undergone alterations and modifications from time to time, and have been by His Majesty's orders brought up to present requirements during the past year. There are in all about twelve of these large and handsome carriages in the royal stables, and they are used for special ceremonial occasions. They are all of similar pattern, although not all made by one coachmaker, a large full quartered body about six feet six inches on the belt rail and of corresponding width; the lower panels come down nearly to the bottom; very little rocker is shown underneath in contradistinction to the modern canoe shaped landau. The wheel base is long, allowing the body to be seen clear of the hind wheel and giving accommodation for the large "hammercloth" covering the "Salisbury" boot over the forecarriage. The body panels

are painted "royal blue." The mouldings gold and edged with red. The undercarriages are very elaborately carved. The "dumls" and wheel plates of some of the carriages are lined with wood and carved. The blocks under the C springs, the footmen's standard boards and the Salisbury boots, the brackets and edges of the footboards are also very richly carved. The ground color is a peculiarly rich red, specially approved by His Majesty, and the wheels and woodwork are all picked out with a broad line of gold leaf, edged, and distance lined with color to relieve it. The springs are all covered with gold leaf; the body loops, which are of snake pattern, and the stays also. The full armorial bearings with mantle have been painted on the door panels and the collar of the garter encircling the royal crest is painted on the quarter panels. The hoods are of enamel leather, and on the corner hoopsticks and pillar tops there is placed the royal crown in metal, and on the middle hoopstick the crest, which is repeated on the full plaited compassed joints of the hood. At each corner of the roof is a small royal crown in gilt metal. The dress landaus are trimmed in rich royal blue taborette silk with acorn and oak leaf design worked in it. The broad silk laces have the rose, shamrock and thistle worked on them, very fine, and the appearance of the whole is enhanced by the very handsome hammercloth, or seat cloth, as it is sometimes called, which is placed in front over the "Salisbury" boot. These hammercloths are all of one special design which has been approved by His Majesty. The proper proportioning of this part of the exterior decoration of the carriage is very important, for if it is too large it not only looks clumsy, but overshadows the underpart, and if it should be made too small or without the proper sail on the "bells" it has a paltry appearance. The present design is the result of several years' experiment and much consultation, and all those concerned are to be congratulated upon the success of their efforts. The materials of which the hammercloth is made are rich crimson and blue velvet and cloth with deep fringes of gold lace and bullion, enriched with acorns and tassels. These are disposed about the hammercloth in such a way that they lighten it and add greatly to its handsome appearance. These five carriages were followed by the state coach, many descriptions of which appeared last year. No alterations have been made in it this year, and it is likely to remain of the same appearance so long as it is used as a state carriage. The horses drawing the dress carriages are very richly harnessed in black and gold, with crimson housings and brow bands, etc. The six horses to each carriage are all of even height and carefully matched, and are all over 16 hands high. The cream "ponies" are not so big, averaging 15.2 hands high. The harness is of crimson leather with gold ornaments, and is very heavy. The horses have to be trained for weeks beforehand to get them accustomed to the loads; they are exercised daily all the year round, during the greater part of the year in the parks in the very early morning. There is every likelihood that during the present year there will be a greater display of fine horses and carriages in London than has ever been seen in any country before, not excepting France during the last Empire. The example of thoroughness, without lavish expenditure, in everything connected with the ceremonial side of his office, which is being given by His Majesty, is likely to lead to the abolition of the very shabby turnouts which have long done duty for those who were not afraid to spend thousands of pounds in house decorations, but were content to get about in any sort of a vehicle, and even went so far as to array themselves in purple and fine linen and proceed to the presence of their sovereign in a four wheel cab.

A WORD TO THE APPRENTICE.

An old journeyman, one who has lived to see the many changes that have been made in the methods of work and the failures from misdirected efforts, contributes the following advice to those who are entering the self-supporting period of life. He writes earnestly and sincerely:

"I should like every boy who is at a trade, or who expects at some future time to learn a trade, to realize the true meaning of the word 'apprenticeship.' There is nothing degrading in it. The boy should not look upon it as so many years of slavery, to drudge and to while away the time without some fixed purpose or object in view. No, it is a period of a few years given to you that you may have the time and means to master your trade, and also the means of making life noble.

It is a training school, a chance given to you to learn a trade and to school yourself to store the mind with useful knowledge. It is the time when the habits are formed which are to govern you through life, and I therefore beseech you to try to pass through your appren-

ticeship in such a way that, in after years, when the cares of life have fastened themselves upon you, that you can look back upon this period as the bright spot in your existence. It involves obligations. You owe something to those amongst whom it enables you to act your part, and you should never think that you are doing too much for them, but try to connect the "now" and the "then." This will help you to extract from seeming troubles something useful and instructive—will teach you that this is only a period of trial and early training.

"This is without doubt your golden opportunity. Trifle with it and you will probably be a trifter through life; use it laboriously and well, and there is no distinction of which it may not be the pledge and foretaste. Regard your apprenticeship as a place of labor, for you have no time to idle away. If you acquire all that is expected of you at the end of your apprenticeship. You are expected to work, to work hard, to work persistently. Do not let this cause fear and aversion. Be assured that nothing is more exhilarating than to feel that work is well done; that something has been mastered which you have deemed insurmountable, and that you have made some certain advance in the rugged road to knowledge. Do not depend too much on your teachers. Your own mind must apply itself to inquiry and research if you wish it to grow in intelligence, and if you want success labor for it yourself, then you will deserve it.

"The common belief, which all observation has confirmed, is that as is the boy so is the man. Has he sown idleness? Idleness he will reap. Has he put forth earnest, laborious endeavor, conscious of the unspeakable value of this time? If so, at the end of his apprenticeship he will be a man sure to make his way in the world, of whom instructors and parents will be proud. Whatever you have to do, learn to do it well; do not get careless or slovenly with your work. Get the good will of the men about the shop. Be polite and show a disposition to please; and while you are learning the trade do not neglect your books. Go to night school in the winter, and during the other months devote your spare hours to your books. Try to learn at least one language beside your own, and it will a thousand times repay you for the effort. Try hard to excel at whatever you undertake, but do not aspire to something that you cannot attain. We once heard a learned man say: 'I would rather be an oyster shucker and be at the head of it, than to aspire to something that I could not master.' Above all, be temperate; have nothing to do with liquor in any form. It is an enemy to success; it will steal away the mind and rob you of ambition. It has nothing to give you but sorrow and remorse. I speak to you from sad experience, and therefore can truthfully advise you to shun it if you wish to succeed through life. Try to live a moral life, religiously so. Recollect that God puts your life very much into your own hands, so that it is committed to you to be moulded into a beautiful thing, or into a thing both unsightly and sad: also recollect that life is what we make it. The will of each person fashions and regulates the life of each. Evil and good, joy and sorrow, success and failure are much more within our power than indolence, hopes or badness believes. Resolve to become what you may be and ought to be, and with the help of Him, without whom no good thought can be cherished, you will attain to usefulness and honor.

"Keep in mind that the year has but one spring; human life but one youthful season of bright and unclouded anticipations. With the stern realities of life comes the cankerworm of care. Study well the Bible and follow its teachings; it will never mislead you, but it will bring peace, contentment and prosperity. Blessings will spring up all around and about your path and your song will ever be "There is sunshine in my heart to-day."

THE BOY'S FRIEND.

NOTES BY A TRAVELER.

TRADE in Louisiana has been of good volume up to October, the state experiencing none of the drouthy weather and corresponding depression, while rural Louisiana still remains *bourgeois* to a great extent, but modern vehicles are being rapidly introduced both for traffic and pleasure purposes. Of course, the outlandish but useful two-wheel plantation cart is not easily to be displaced, the manufacturer thereof being as large as ever and principally confined to the State. As no woods need be imported, at least not materially so, home manufacture is carried on with profit.

Cane, rice and corn have been the chief agricultural products for years and since immigration from Eastern States has set in, the entire disposal area is being put under cultivation. The majority of the rice growers are now Easterners and with them came modern

agricultural implements, farm wagons, etc. Dealers in vehicles are multiplying readily under the growing demand, and it may not be long before the state will supply direct two-thirds of the vehicular wants. At present every neighboring State has a hand in the trade, Texas' percentage being remarkably large.

The trade features of New Orleans are cognate with those of St. Louis, proportionately speaking, from the dealer's viewpoint with a Memphian aspect as to *modus operandi*. The export business is large and growing. Pan and South American wood manufacturers at large seeking this outlet would do well to co-operate earnestly with the local factors who sometimes strive in vain against overwhelming odds. They pleasantly relate of the business developed in South Africa since Great Britain has made New Orleans its chief supply basis. The South African or South American farmers are looking upon modern improvements rather dubiously, but no more so than our own Southern farmers, but once acquainted with the economical results to be obtained, buying proceeds spontaneously.

Among the inland manufacturing points of note are Shreveport and Alexandria—the bulwarks of Northern Louisiana. Fish Bros. C. Co., at Racine, and Vordenbaumen at Lafayette are two notable concerns on the S. P. route. The Welsh I. & C. Co., at Welsh, is a growing concern; Avery's Old Hickory and Studebaker's being the salable line. New Iberia, Morgan City and Crowley have each several large dealers and small manufacturers. Lake Charles has two concerns of considerable importance which besides a full standard line of implements handle the leading vehicle makes. I may state here the cycle and automobile trade is remarkably small despite the generally good roads, the Louisianan evidently preferring the saddle.

Barzein makes of business and pleasure vehicles, constructed in part of leather, have a short life in this climate. Careful dealers demand the best leathers and varnishes. An effort is being made to substitute fancy canvas as buggy tops. I have also seen tops made of pulp mounted on fancy vehicles.

The fashionable farm wagon, green, adopted by our largest makers, and now setting the tone everywhere, is being locally supplanted by ochre hues, the color resembling fattish clay being the most popular. Wagon red has become very commonplace and while handy in emergency, is not used for commercial purposes, unless specified. The Southerner loves color, and the manufacturer should study to please this fad and fancy.

Southern towns are, as a rule, compactly built and confined to a few thoroughfares. Hence, delivery wagons are little in demand. But a change is coming with the merchants recruited from the East, and a big business may be looked for in this line within the next decade.

SOUTH BEND, IND.

THERE are fifteen or more factories in South Bend and the immediate vicinity engaged in the manufacture of vehicles and farm implements of all descriptions. Reports from the majority show that business is unprecedented and orders already placed with most of the concerns show a substantial gain of many carloads over last year. Everything possible is being done to meet the demands and the heavy payrolls and extra hours show that neither men nor machinery are being spared in an effort to manufacture. The cold weather of the last month has somewhat put a stop to shipments. However, the factories seem well satisfied if deliveries are made within any reasonable time. Nothing but a very late spring will prevent the cancellation of quite a number of orders, judging from the present crowded conditions. Added to all this is the great difficulty of obtaining raw materials and the inability of the mills to effect delivery. It appears that every iron and steel mill is crowded to the utmost and orders must be placed months ahead in order to get stock when actually needed. Even then great inconvenience is experienced, as it seems necessary to keep constantly pounding away at the mills in a most vigorous manner to get the raw materials at all.

The Studebaker Bros.' Manufacturing Co. celebrated the fiftieth anniversary of the inception of the business on February 15th. Had Hon. Clem. Studebaker lived the celebration would have been upon a grand scale. Plans were being made for a splendid observance of the event. The company will probably issue during the year something of a literary character and very elaborate in honor of the notable event. As a mark of appreciation of the employees' services they were given a half holiday on full pay. They were greeted by J. M. Studebaker, Sr., president of the company, who spoke briefly of the

anniversary and expressed the gratefulness of the company for the services rendered.

A call at the Winkler Bros.' carriage and wagon factory found them still in a crowded condition with sufficient orders accumulated to keep them busy for several weeks to come. The Messrs. Winkler are highly elated over their greatly increased business.

Many improvements have been made at the factory of Hunt Bros., wagon and carriage manufacturers of this city. An electric motor has been installed to operate the machinery and a large addition has been made to the main building. The offices have also been refinished.

The Coquillard Wagon Works reports an extremely heavy business, but notwithstanding everything is running along smoothly, and it is anticipated that all orders at hand will be taken care of in good shape.

The South Bend Spring Wagon & Carriage Co. recently made a shipment of a number of rural mail delivery wagons to be used in the rural mail service.

The South Bend Wagon Co. is under very heavy pressure in the way of orders and large shipments are being made. Like most other concerns the South Bend Wagon Co. has been greatly annoyed by the non-delivery of raw materials.

The Studebaker Bros.' Manufacturing Co. has leased the Chockett building and will utilize the same for the exclusive manufacture of automobiles. For this purpose an alliance has been formed with the Westinghouse Electric Co. and the Cycle Parts Co. The Westinghouse people will have entire charge of the electrical part. The company will get the first storage battery produced under the late patents of Thomas A. Edison, which combine newly discovered principles in the construction of storage batteries.

James G. Hening, formerly manager of the Charles E. Hunter estate at Richmond, Va., was in South Bend the first of the month. Mr. Hening has purchased the implement business of the Hunter estate and with Mr. Nuckels, of Richmond, will form a partnership under the firm name of Hening & Nuckels.

L. F. Weaver, who is now in Honolulu in the interest of the Studebaker Bros.' manufacturing Co., has received instructions from the firm he represents to extend his trip to the Philippines, Japan, Australia and Siberia.

The Messrs. Lewis, of McFall, Mo., and George Osborn, of Maysville, Mo., have leased the E. W. Walker buildings and machinery at Goshen, Ind. Attention will be directed entirely to making carriages.

E. B. & David Trumbell, of La Porte, Ind., have decided to locate in Plymouth, Ind., establishing a plant for the manufacture of wagons. Their factory is at present located at La Porte.

Oscar H. Schildback, who has been in the employ of the Studebaker Bros.' Manufacturing Co. for about fifteen years, has resigned his position as draftsman with that concern and has accepted a more remunerative position of the same character with the carriage manufacturing company of H. H. Babcock & Co., Watertown, N. Y. Mr. Schildback's long and faithful services with the Studebaker Co. won for him the high esteem of his employers and his associates. This was shown in a marked degree by the foremen of the carriage works presenting Mr. Schildback with a gold headed cane as a token of their regard.

"THE PERFECT METHOD" SYSTEM.

THE carriage paint shop has long since ceased to be the home of "deviltries" that worried the painter of former days. Speed, economy and durability have taken the place of the slow, expensive and uncertain quality. This is due to a scientific study of paints and painting both by the painter and the manufacturer of the materials. Methods have been introduced that systematically provide for each coat from the first covering of the wood to the last coat of finishing varnish. These methods have worked marked changes and have been productive of good results, not only in the quality of the work, but in the increased efforts on the part of the painter to meet the demands of the times for speed and high quality.

Among the methods that have been introduced and which have won favor because of the satisfactory results attained is the "Perfect Method" system brought out by The Sherwin-Williams Co., of Cleveland, O. What is claimed for this method can best be told in the manufacturer's own words in their pamphlet that they send out to users.

"There is, without doubt, no other cause for complaint so exasperating to the carriage dealer, and the carriage user as well, as that of poor painting. It is expensive to repair and takes a long time, during which the owner must do without his vehicle. Very much to his inconvenience and annoyance. Anything which will lessen these complaints should be a welcome boon to the carriage dealer and manufacturer. Perfect Method will do this. It will reduce the number of complaints to the minimum by removing the cause as much as possible.

Perfect Method is durable. Perfect Method is economical. No work can be painted more durably any other way. No work can be painted as economically and still be painted as well by any other method. It excels in durability, economy and beauty.

It is durable because prepared from the very best material that can be secured; it is mixed according to uniform formulæ and is always the same; it is ground by the very latest and most improved machinery; it is the finished product of our long experience with the demands of the carriage trade. It is economical because it saves time and reduces the number of complaints, together with allowances for re-painting. It gives a beautiful surface because it is ground exceptionally fine and removes many causes for imperfect workmanship.

Work painted with Perfect Method carried through on schedule time can be painted more quickly than in any other safe way, and as durable as though given weeks of time. It enables a manufacturer to fill his orders more promptly, with work whose durability is unquestioned. It is made for speed and durability combined. In the past lead and oil has been considered the most reliable paint for carriages. We claim that Perfect Method is superior to lead and oil for the following reasons: In a great many cases carriage manufacturers have difficulty, from time to time, in obtaining pure linseed oil. They also have great trouble with adulterated turpentine. In many cases the lead is impure or it is a pulp lead, either of which is unfit for carriage work. Then, too, the average carriage painter does not mix his different coats by any definite formulæ, and consequently each batch varies slightly. Nearly everything which we offer in this system is ready for use, consequently requires no manipulation.

Another very serious cause for complaint with lead and oil is that it is not adapted to the present mode of painting. It was fairly durable when carriage manufacturers could give plenty of time to painting a buggy. Then they began with a very elastic primer, next a less elastic lead, then a still less elastic lead, after that a dead lead. They then gave one or two coats of flat color, then several coats of clear rubbing varnish and a coat of finishing varnish. They worked from a very elastic primer down to a dead color and back to an elastic finish.

The demands for cheap work and the necessity for painting it quickly in order to fill orders, caused them to cut down the number of coats until they used only a coat of elastic primer, next a coat of dead lead, then a coat of flat color, color varnish, and finish. In other words they put a dead coat immediately over a very elastic one, and the results in many cases were fatal to good painting.

Perfect Method is elastic from primer to finish. There are no dead coats on gear work where the trouble generally occurs, and the body coats are more elastic than in the old way. It is good enough for the best work and cheap enough for the cheapest, as evidenced by the fact that a number of manufacturers of high priced work as well as many manufacturers of the cheapest work have used it for a long period with most satisfactory results.

To the carriage dealer and jobber the Perfect Method system offers the following advantages: Durability, because more elastic, more perfectly mixed, made from pure materials, from uniform formulæ. Economy, because it insures fewer complaints and less trouble in securing stock with which to fill orders. Beauty, because it enables a carriage manufacturer to secure a better surface at the same expense."

THE HANDY SHOP BOOK.

THE above is the title of a publication by Ware Bros., of Philadelphia. It contains much information of value regarding the making of working and other drawings, numerous working drawings of vehicles, illustrations of gears, scroll designs, extended remarks, and numerous drawings regarding springs and spring steel, and additional articles relating to painting and numerous illustrations of trimming. The book is a valuable one for the carriage manufacturer and should meet with an extensive sale, as the price, \$1.00, puts it within the reach of all.

CARRIAGE TOURING IN PHILIPPINES.

NO BRIDGES, BUT RIVERS ARE NOT DEEP.

I left Iloilo at daybreak, in two horse outfit, with native driver. We arrived at Tibauan towards nightfall, and started for Miagoa next morning, after stopping with the American garrison at the latter place. Here we were provided with a guard of two soldiers for the country is overrun with ladrones, freebooters and rebels and small parties are often fired upon and sometimes captured. The Americans have done wonders towards the grading of the roads, clearing



TRAVELLING FILIPPINO PREACHER.

out clogged ditches and repairing bridges. But many of the rivers are too wide for the erection of wood bridges with the available tools and they have to be forded. The little native ponies are well used to fording rivers, and they usually make a straight line for the opposite bank.

We met a Filipino preacher after crossing this river, and his photograph is shown. He was particular concerning his brown complexion and carried an umbrella. He was alone, for the preachers of the islands are not interfered with by either insurgents or guerillas.



HOW THE SOLDIERS TRAVEL.

At Guimbal I met with a party of American soldiers travelling from one place to another to establish a new post. They had with them some of the Americanized native scouts. They were afoot, but employed a native bull cart to carry their rations, packs, etc. After leaving Guimbal we proceeded to Miagoa, the point of my destination, where we remained over night, returning to Iloilo the next day.

—"AMERICAN TRAVELLER in Philippines."

JOHN S. POYEN.

THE International A. & V. Tire Co., New York, have secured the services of Mr. John S. Poyen, who was formerly associated with the New York Belting & Packing Co.'s vehicle tire department. He is located at the company's home office, 346 Broadway, New York.

Many a man gits clus tur Natur' when he can't raise the price uv a lodgin'.

AUTOMOBILE DEPARTMENT

PARIS AUTOMOBILE SHOW.

(For illustration see "Latest Styles.")

(From THE HUB'S Special Correspondent.)

THE Salon du Cycle et de l' Automobile was held in Paris, France, from the 10th to 25th of December, and was the greatest motor carriage exhibition that has been seen, the value of the vehicles exhibited amounting to over a million dollars.

For the technical man and for the riding public, it was one of very great interest. For the first it summarized just how much and how little had been done up to the end of the year, with mechanical progress, while for the latter visitors it decided the choice for motor-carriages in the coming season.

We will in the following article deal with the exhibits so far as they presented novelties of style in carriage bodies, points of interest in the construction and also to briefly mention the leading features in the motors and the means used for the transmission of their force.

The overwhelming prevalence of explosion vehicles, the limited number of electromobiles and the strikingly few exhibits of steamers, indicated clearly enough the preference of the French public in the matter of economy—other points being secondary.

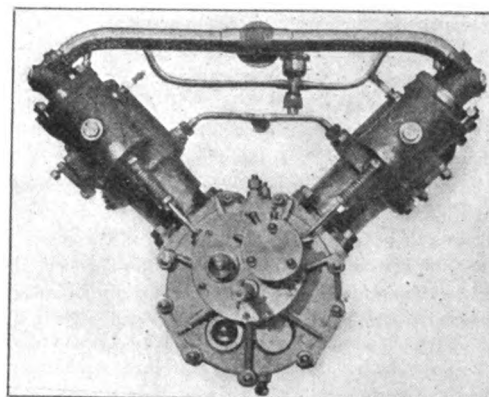
Of all the types of bodies adopted for explosion vehicles, benzoline, kerosene and alcohol, the tonneau or "barrel" was the most prevalent. After this mongrel wagonette, the brake took second place, and the "phaeton" third. This latter appears to have fallen from the vogue which it obtained a few years ago.

Electromobiles are, in France at least, the only vehicles which a coach-maker of the old days would consider to be of passable style, and these carriages certainly merit the first place for elegance. The most usual form is that of the coupé, landau, victoria, and four-wheeled cab. In the latest styles the presence of the accumulator boxes is almost concealed, and the motors are made so small and neat as to be nearly unnoticeable to the passer-by on the street. These newer types, however, form the minority; the most common form of electromobile being very bulky with its accumulators.

There was one carriage at the exhibition which stood incomparably above all others and created attention from its singularly beautiful lines and rich finish, and this was among the electrics shown by the Riker Motor Vehicle Co., of Elizabethport, U. S. A., a superb C-spring Victoria, with the coachman's boot and steering-wheel behind. There was nothing else exhibited which was mounted in anything like the luxurious manner and with the refined taste of this carriage, and it was not surprising to notice that it had been sold to a lady of high rank. Next to this in richness—of a very different order—was the very small coupé made for the Sultan of Morocco (by Georges Richard, Paris), in Louis XV form, and painted a sage green, the lower quarter panels being ornamented with a mass of gilt filagree work and the whole highly polished. The windows were of beveled plate glass in frames covered with light green plush, while the trimming was of a lighter green watered corded silk, that of the roof being gathered by diagonal plaits into a centre rosette. The inclined steering bar inside had a green stained wheel handle, and all other fittings were in harmony. This exceptionally pretty work was in some measure depreciated by the straight tubular frame and small, equal-sized wire wheels on which it was mounted, while an unsightly "hutch" or "hood" over the engine in front of the body tended to make the whole appearance somewhat ridiculous—an anachronism. Behind the body was a foot board for a standing footman. Such a fanciful production as was this would, alas, scarcely be of much use in a large city, yet something a little more graceful than the ordinary motor trucks so plentifully exhibited at the show would tend to make street traffic in Paris less hideous.

The most remarkable fact to be observed with explosion vehicles was that nearly all makers now place their motors in front of the

vehicle, between the front wheels, using various forms of transmission for driving the hind wheels. This method has been adopted by some of the older firms which had for years located the engines near to the hind wheels. The most successful automobile makers place their cylinders in front, vertically and in parallel groups of two and four, each pair generally being cast together. In this, however, there were a few notable exceptions by those who consider a single axis, for all the cylinders, to be a bad application of power from the low mean of effort and twisting moment realised, as compared with cylinders whose axes are as variously placed as to secure a greater average of tangential thrust. Thus we still find some excellent makers using motors (Ader's, see Fig. 1), in which each cylinder stands at a relative angle of 90 degrees with each other. Yet others maintain that the disturbing effect of multiple pistons which are not counter-balanced (as they would be by being driven simultaneously



ADER'S TANGENTIAL THRUST MOTOR

in opposite directions), is very great, and they therefore employ two cylinders placed in the same axis, transversely to the carriage, and with their connecting-rods acting at the same moment in opposite directions upon the same shaft, the cranks for which are situated at right angles. Notwithstanding the excellence of these latter dispositions they are not, as we have just indicated, popular with makers. An explanation may be that the average Frenchman is not excessively acute in his sensibilities to vibration, jarring or noise any more than to offensive odors (gasoline, etc.), and does not, therefore, care to pay a high price to be saved such trifling inconveniences.

Although the trussed tubular frame, so much used for the smaller carriages, is not yet completely abandoned for the heavy vehicles, yet it is being superseded by the straight channel-iron frame, by frames of U section, frames of rectangular section, and ash frames stiffened inside with plating of shallow I section. Steel and aluminium alloys are the metals most used.

Wire, or suspension wheels with tangent spokes, have become distinctly unpopular except for *voiturettes*, as are called the very small city motor cars. To electric carriages, however, this fad does not seem to apply, for there are some new and extremely fine electromobiles about Paris with wire wheels.

With the popular wooden wheels the barrel of the metal hubs now projects inside, "artillery" fashion, and the steering pivots for the front pair are being made of yet greater length, the exception generally being with light *voiturettes* and with the heaviest class of tractors or freight trucks, in both of which, singularly enough, a short pin with calliper or forked brackets is employed.

As previously mentioned, elegance of design is on the whole not to be compared to that which obtains in the United States; we shall therefore select for illustration those carriages which appear to be the most suggestive and remind the reader, as a matter of history, that they are the exception and not the rule, for the "tub" style at present reigns supreme.

COLUMBIA ELECTRIC TONNEAU.

(For illustration see "Latest Styles.")

ONE of the latest products of the Electric Vehicle Co., of Hartford, Conn., is shown in our "Latest Styles" this month. It is designated by the company as Mark XXXV Columbia Electric Tonneau, and is another illustration of the enterprise of this company. The vehicle is hung low, making it convenient and insures safety when speeding. The tonneau feature is becoming popular and the company are ready to meet the most advanced views of the trade. The finish of the vehicles manufactured by this company is of a high grade, while the mechanical construction is as near perfect as possible.

ELBERON VICTORIA.

(For illustration see "Latest Styles.")

ELBERON Victoria, Mark XXXI, is the latest of the Electric Vehicle Co.'s model victoria. It is distinctly a carriage for light pleasure service and park riding, as well as for calling and other social functions. Its handsome and refined finish and graceful lines give the carriage a most stylish effect. These, with the long wheel base and flexible spring suspension, insuring the greatest ease in riding, appeal especially to ladies, with whom the victoria has always been one of the company's most popular types of vehicles. It is of the most durable construction, and is designed to withstand all forms of city and suburban usage. This carriage has a double motor equipment, with the steering rod, as well as the controller handle on the left side, leaving a clear space in front of the seat. The controller gives three speeds forward and two backwards. The battery is divided evenly on the front and rear axles. This arrangement, experience has shown, is the most advantageous in the operation of all vehicles. The body hangs particularly low, making it most easy of access to the passengers. The battery is of the Exide type, consisting of forty cells, and giving a radius of forty miles on each charge, based on level asphalt or macadam. Speeds are given at the rates of three and one-half, six and thirteen miles per hour. The finish is: Body panels, dark green; battery boxes and panel mouldings, black; gear, dark green, striped with black center and two fine lines of light green side stripes; upholstery in dark green leather; lamps, silver mounted; steering and other parts, nickel plated.

DURYEA POWER CO.

(For Illustrations see "Latest Styles.")

THE Duryea Power Co., of Reading, Pa., have been able, in many ways, to demonstrate the value of the automobile under adverse circumstances, traveling through snow being one of these. The illustrations are from photographs and show the conditions plainly.

THE LATEST FROM THE ELMORE MFG. CO.

(For Illustration see "Latest Styles.")

IN their "New Model 6" the Elmore Mfg. Co., of Clyde, Ohio, offer the public several new features while at the same time retaining all the desirable points of their 1901 carriage. As shown in the illustration in "Latest Styles" the body has a panel box forward which is free of all mechanism and is intended as a luggage carrier. The present body is longer than that on their last year's model, the extra length being that added by the box. It is also set two inches farther back on the running gear. The length of wheel base has been increased six inches. The seat is sufficiently wide for two persons and is upholstered in leather.

The running gear is built entirely of seamless tubing and is strongly braced. It is fitted with 28-inch wheels both front and rear, and with 2½-inch tires having especially heavy treads. The spokes of the wheels are nine gauge and their hubs of extra length. The springs are of the well-known Concord type and while sufficiently stiff to prevent a cradle-like motion when going over rough roads, they are resilient enough to make riding comfortable. The standard finish for the running gear is red while the body is usually finished in black.

The carriage is driven by a two-cylinder gasoline engine with cylinders 4 by 4 and developing over 5-brake horse power at 600 revolutions per minute. The throttle of this engine is its most unique feature. It is placed so as to throttle the mixture just before it enters the

cylinder, and the response of the engine is said to be more prompt than a steam to variations in the throttle opening. The ignition device has but one moving part and is therefore of the simplest form imaginable. It is of the hammer break type and the electrodes are tipped with platinum. Current for the igniter is furnished by a dynamo and storage battery having sufficient capacity to run the engine for several days. The engine may be started with either the battery or the dynamo. It is water cooled throughout, circulation being insured by a rotary pump, and the water cooled in a radiating tank under the front of the body. Power is transmitted from the engine to a countershaft by means of a chain and sprockets. The countershaft contains all the variable speed mechanism which is controlled by means of band brakes, giving three speeds forward and one speed reverse. From the countershaft the rear axle is driven by means of a roller chain connecting to a sprocket on the differential.

The vehicle is controlled from a vertical post in the center of the carriage and immediately in front of the seat. The top lever is for steering while just beneath it is an arm for controlling the three forward speeds. Beneath this arm and just behind the steering post is the throttle and the small wheel near the bottom of the carriage is that for the needle valve of the vaporizer. The outer foot lever is for controlling the brake on the differential, while the inner is for operating the reverse. The weight of the carriage is 1,000 pounds, which item shows that it is in this respect between the two extremes, having sufficient weight to stand the strains, while it is not heavy enough to be cumbersome.

These vehicles are sure to attract considerable attention at the Chicago show where they may be found in the track space on the east side of the Coliseum and just north of the middle of the building. The company announce that it has secured the services of Mr. E. W. Roberts, who lately resigned the editorship of *The Gas Engine* and gave up a promising engineering business to enter the employ of this concern as their mechanical engineer. Mr. Roberts is already well known to many of our readers from his prominence in gas engineering, both as a frequent contributor to the technical press and as the author of several books on the subject.

KNOX FOUR PASSENGER AUTO.

(For Illustrations see "Latest Styles.")

THE Knox Automobile Co., of Springfield, Mass., have brought out a combination automobile which can be easily converted from a two to a four passenger capacity. This makes a very desirable vehicle for touring or pleasure riding for a party of four, and when closed it appears equally as attractive for two. The long side springs used by this company contribute largely to give a steady elastic movement to the body. The carriage is driven by a single, horizontal cylinder, eight horse power gasoline engine, which gives a speed up to thirty miles an hour. There are many features connected with the mechanism of this motor that are worthy of consideration and which tend to gain for it a marked degree of public favor.

THE OLDSMOBILE.

(For illustration see "Latest Styles.")

THE Oldsmobile, built by the Olds Motor Works, of Detroit, Mich., is one of the vehicles that is built upon scientific principles. It is intended as a pleasure or business vehicle, not a racing machine. It has been tested over heavy and rough country roads through ice or snow; up hill and down hill, the motive power being ample for its weight. All the machinery, etc., are in the rear part of the body, the engine proper being in the center of the carriage. The body of the vehicle is mounted independent of the motor and running gear, being sustained by rubber cushions which eliminate all vibration. It can be operated with ease by the inexperienced and is controlled by a single lever operated by hand on the right hand side of the seat. The company will be pleased to forward one of their descriptive catalogues to parties interested in automobiles.

BALDWIN AUTOMOBILE MANUFACTURING CO.

GEORGE J. HUMBERT and Edward W. Boyd, receivers of the Baldwin Automobile Manufacturing Co., bankrupt, filed their account in the United States District Court in Pittsburg, Pa., giving the company's liabilities as \$100,298 and assets \$98,605. The account shows that \$2,251 was due for wages which have been paid and claims

assigned, \$6,500 secured on claims on mortgages on property in Connellsville, where the plant is situated, and \$91,547 unsecured claims. There are 220 creditors, whose claims range from 30 cents to \$6,892, and \$64,029 due on 19 notes ranging from \$700 to \$10,000. The assets consist of \$90.30 cash; real estate, \$71,856; notes of Horatio Frazer, \$6,000; stock, \$15,000; accounts due, \$1,658, and \$4,000 due on stock subscriptions. The fire insurance amounts to \$58,000.

The petition in bankruptcy was filed against the company January 22, 1901, and receivers were appointed January 24, 1901. The latter charge themselves with \$78,387.73, of which \$40,268.41 is cash received and \$38,119.52 is value of stocks. They give themselves credit for \$94,762.68; a depreciation of \$500 on stock leaving the value of stock at \$37,619.52; a balance of \$16,874.95 due on materials purchased, and place the cost of carrying on the business at \$40,268.41.

ELECTRIC VEHICLE MEETING.

At the annual meeting of the Pennsylvania Electric Vehicle Co., held in Camden, N. J., on February 18th, a resolution was passed reducing the number of directors from nine to seven, and the new board elected as follows: Herbert Lloyd, John R. Williams, J. B. Entz, Frank C. Lewin, Augustus B. Stoughton, Henry G. Morris and Pedro G. Salom. The former board of nine members consisted of the above seven names together with George H. Day, resigned, and W. W. Gibbs, who withdrew his name both as director and president. Vice President Herbert Lloyd will be president *pro tempore* until the directors organize, which they will do in a few days.

The annual statement gave the following figures:

Value of property, vehicles, etc.....	\$825,000
Sales of vehicles for 1901.....	88,000
Loss during first six months of 1901 from cab service.....	17,000
Profit during second six months (about).....	4,000

It was said that the Electrical Vehicle Co., the parent concern, had purchased last fall the Seldon gasoline patent, which it is claimed, covers the fundamental rights for using gasoline as a motive power in automobiles. Litigation is now in progress, and if the patent shall be sustained the Pennsylvania Electric Vehicle Co. would own the exclusive gasoline rights in Pennsylvania.

HENRI FOURNIER TO HAVE A NEW MACHINE.

HENRI FOURNIER, of Paris, champion automobilist of the world, and Alexander Verheyen, champion motor cyclist of Germany, arrived here yesterday on the Kaiser Wilhelm der Grosse. Fournier sailed from New York on December 21.

"I went to Paris to get a new racing machine built," said Fournier. "The car will weigh less than a ton and will have several important improvements over any of my other machines. I expect greatly to increase my speed with the new racing car. In fact, I hope with this machine to do a mile in better than 35 seconds, my record being 51 4-5 seconds.

"I shall use this machine for the great races soon to come off in France. One will be a race from Paris to Bordeaux and another from Paris to Vienna. After these contests I may bring the new automobile to America. I am going back to Paris in April to train for the big races. While here I shall try to lower my record with my present machine."

Alexander Verheyen, as a motor cyclist, has done a mile in 56 seconds, which is considered remarkable work. He brings a new motor tricycle with which he intends to make a few attempts at breaking records in America.

SHERIFF'S SALE OF VEHICLES OF THE GENERAL CARRIAGE CO.

SHERIFF'S auction sale under execution upon judgment for \$41,960, obtained against the General Carriage Co. in favor of Trowbridge & Livingston for architect's fees, will be held Friday, March 7th, at 10 A. M. at the former stables of the General Carriage Co. on the north side of Forty-third street, just east of Sixth avenue, in the city of New York, Borough of Manhattan. The attached property was appraised in the sheriff's inventory at \$40,180.

TROWBRIDGE VS. THE GENERAL CARRIAGE COMPANY.

List of automobiles consists of eighteen Wood's (electrical automobile) hansoms, seven Wood's (electrical automobile) broughams, two Wood's (electrical automobile) breaks, three Riker square front

(electrical automobile) broughams, three Riker public (electrical automobile) cabs, four Riker (electrical automobiles) demi coaches, four Riker (electrical automobile) busses, one Riker (electrical automobile) hansom, two Wood's (electrical automobile) victorias, two wrecking wagons. Total vehicles, forty-five, together with hand tools, jacks, etc, desks and typewriter.

HOW THE AUTOMOBILE FACE IS ACQUIRED.

BY HENRY FOURNIER.

THE most careful chauffeur cannot avoid being shocked every time he takes a spin. I do not think that any other sport known to man affords so much excitement. One needs a stout heart and a strong nervous system as well as keen eyes to indulge in this most modern pastime, for I do not believe that navigating a flying machine brings a man into contact with more perils.

The automobile face is no joke. It is the startling presentation in the human physiognomy of the record of thousands of dangers passed, or, rather, close escapes from danger. I have never been in but one accident that was really serious, and in that case we were wrecked and bruised almost before my mind had time to form a picture of what threatened us. I refer, of course, to the time when my machine was run down by a locomotive on the Long Island Railroad. We were caught like animals in a trap by reason of the lack of protection at a blind grade crossing. I had barely time to whirl the steering wheel in an effort to get off the track when the engine was upon us and tossed us and the heavy machine into the adjoining field like so much chaff.

Serious as this accident was—for three of my companions were so badly mangled that they narrowly escaped death—I still think that it did not leave so much impress on my mind and nervous system as the thousands of hairbreadth escapes through which I have been. It is the constant flirting with death that gives the automobilist his characteristic face. Strangely enough, it is not the fear of death for himself that shocks him, but the dread lest he may be the cause of death or injury to others.

When a man begins to run an automobile he is timid—that is, assuming that he is a man of sound and normal mind. Only fools do not know the meaning of the word fear. But every ride the chauffeur takes adds to his confidence in his machine as a good yachtsman is of his yacht or a cavalryman of his horse. He goes flying along the road, exhilarated with the sense of swift motion, feeling like a greyhound or a swallow in full flight. The idea that he may be hurt never occurs to him any more than it does to the greyhound or to the swallow.

Only one fear haunts him—that he may possibly run down some other vehicle or run over a pedestrian. The greatest source of danger lies in small boys at play, especially in suburban cities and the outlying districts of this city, where boys play at will about the streets with no thought of being run down.

I know of no other shock in automobilism that is equal to this. One's heart becomes constricted by fear until it feels no bigger than a marble. Every nerve in the body seems tied in a knot. The eyes protrude and the chauffeur in his mind contemplates the awful spectacle of the mangled and bleeding little body on the dusty roadside. The chauffeur's hand flies to cut off power, to apply the brake, to swing the reverse lever. As if by a miracle the boy escapes. The rush of air with the machine perhaps blows off his hat. He has been within one-fiftieth of a second of a horrible death.

This is the sort of experience that produces the automobile face, which the doctors are beginning to write learnedly about. Of course the constant attention one has to pay while automobilism to the road, to the machine, and all its parts, and to the distances which separate the machine from dangers of collision, must tend to produce a tension of the muscles about the eyes, the mouth and even the ears, which, upon becoming fixed, produces the characteristic automobile face. But it is the horror one feels that he may be the innocent cause of destruction to others that is the most potent factor in evolving the automobile face.

To avoid such a shocking accident as that in which the former White Ghost figured last week, I would suggest to all chauffeurs the necessity not only of extreme care while going through suburban streets, but of a low rate of speed as well. No one can question that an automobile can be stopped sooner when it is running at the rate of twenty miles an hour than if it were running at the rate of forty miles.—*New York Herald*.

RECEIVER FOR THE AUTOMOBILE CO. OF AMERICA.

HENRY C. CRYDER has been appointed temporary receiver of the Automobile Co. of America for two weeks, by Vice Chancellor Stevens, of Newark. The application was made by V. Everit Macy and others.

Mr. Cryder is the treasurer and general manager of the company, whose factory is in Jersey City. A rule to show cause why he should not be made permanent receiver is returnable before Vice Chancellor Stevens in Newark next Tuesday.

The affidavit of the president, George D. Gregory, declares that prior to November 1st last, the management was extravagant and uneconomical, that the officers did not understand the business and sold automobiles for less than the cost of production. Under the new management recently inaugurated, it is said the expenses have been greatly reduced, with every prospect of the business being put on a paying basis.

Liabilities are placed at \$325,167.44, as follows: Demand notes, \$135,400; notes payable, \$35,424.16; accounts payable, \$44,986.78; deposits on automobiles, \$44,356.50; mortgages, \$65,000. The demand notes outstanding on January 25th amounted to \$138,242, as follows: E. P. Kimball, \$19,200; V. E. Macy, \$35,200; J. H. Flagler, \$25,200; S. S. Ripley, \$35,200; F. R. Blount, \$1,600; R. L. Stevens, \$4,000; F. L. Underwood, \$15,000; Henry C. Cryder, \$2,842; other notes on the same date were held as follows: Mount Morris Bank, \$15,000; Market & Fulton National Bank, \$10,000; National Bank of North America, \$6,000; Yawldin, Walker & Weiss, \$2,000; Law Cement Co., \$939; C. N. Lockwood & Co., \$402.

The balance sheet issued December 31st showed total assets of \$5,332,869, but the bill declares that the heavily mortgaged plant at Jersey City is the principal asset. Patents, trade marks and good will were recorded as worth \$4,718,205. The bill of insolvency charges that these so-called assets represent absolutely no marketable value. Other assets are said to have been similarly overstated.

The company paid \$62,500 for its plant in Jersey City, the cost of operating which is stated in the bill to be upward of \$20,000 a week. It also acquired the property of the American Motor Co., a Maine corporation, consisting, as the bill says, "of a large amount of unavailable assets, including certain patent rights and alleged good will, none of which is of any value."

The amount of stock held by the four complainants against the company are as follows: V. Everit Macy, stock, \$250,000; John N. Flagler, stock, \$550,000; Sidney D. Ripley, stocks, \$37,000; Frank L. Underwood, stocks, \$135,000. One of the officers of the company said the business would be continued. The headquarters are at Marion, a part of Jersey City.

FRENCH AUTOMOBILE INDUSTRY.

At the opening of 1902, France still claims the lead as the automobile country par excellence. This doubtless appears strange to manufacturers in the United States, where a ton of steel and a ton of coal are cheaper than anywhere else in the world. Unprejudiced judges have lately pronounced the American automobile the handsomest on the market, and now that the rage for speed will soon be past and the practicability of the machine assured, it must be acknowledged that in this final test the United States is almost, if not quite, abreast of France. The French manufacturer has realized that he has a competitor across the Atlantic. The fact that Mr. Henri Fournier, the winner of the great Paris-Berlin race, has selected the capital of New York State as the location of the \$2,000,000 automobile factory which he is to direct, is significant. The general consensus of opinion among automobile manufacturers in France is that the big machine is a thing of the past, because of the restrictions upon speed in all countries. The demand is growing for a strong, light and comfortable machine of moderate speed for general use. This is attested not only by the manufacturers, but is shown by the decrease in number of accidents, despite the growth in the automobile industry. Another tendency is the perceptible lightening of frames and a lowering of the body toward the ground, with a decided inclination toward wheels of equal size.

Apart from coal mining and the big metallurgical industries, it is estimated that automobilism, directly or indirectly, maintains more people in France than any other industry. All the factories have tripled their output during the last three years, and manufacturers formerly making cycles now produce automobiles. At first, Paris

was the only city where autos were made, but now Lyons, Bordeaux, Marseilles, Lille, St. Etienne, Nantes, and Rouen have factories to supply local demands. Mr. Leon Auscher, in one of the Paris journals, mentions the following branches that are benefited by this industry:

Foundries for the production of cylinders and other castings.

Copper boiler works, factories for oilers, tubes, connections, etc.

Aluminum foundries, which work exclusively for the automobile industry.

Spring and spindle works, whose output has increased fivefold since 1898.

Factories for bolts, screws, rivets, and other small hardware.

Wheelwrights' shops, which depend in a certain measure on automobile factories.

India-rubber factories, which have developed to a colossal extent.

Nickel and copper shops.

Aluminum carriage building trade and allied industries.

Automobile painting trade.

Automobile upholstery trade, which employs morocco dressed cowhide to such an extent that the French tanyards can not meet the demand, and English and German products are also used.

Lamp trade, which furnishes two and sometimes five lights for each vehicle.

The small industries allied to the carriage building trade—the leather worker, the enameler, the cabinetmaker—all contributing certain details before any single vehicle is complete.

Accumulator factories.

Specialties in measuring apparatus, ampère meters, volt meters, resistance measuring apparatus, etc.

Manufacturing, rectifying, and canning automobile mineral fuel and preparing cans of oil and nonliquid grease.

"By reckoning all these workmen," adds Mr. Auscher, "a grand total is obtained of nearly 200,000 persons in France dependent upon automobilism."

THORNWELL HAYNES, *Consul*.

ROUEN, January 1, 1902.

TOLEDO STEAM CARRIAGE.

WE quote below a clipping from the Little Rock Advertiser of Little Rock, Ark.:

"On the day before Christmas, 1901, two young men started from the lakes at Toledo, Ohio, on a steam carriage on their way to Hot Springs, Ark. Their names are C. E. De Long, of Hot Springs, and J. E. Soules, of Toledo. They arrived in this city last Thursday from Memphis by rail, not being able to cross the Mississippi bottoms because of the late heavy rains.

They passed through Cincinnati, O., Louisville, Bowling Green and Paris, Tenn., and thence to Memphis. The test was to be made through the worst weather and over the worst conditions of roads, and they sure struck it right in these respects, for rain and hail and snow have put in full time since the holidays never heard of before. They will remain here until Monday, February 10th, and then use the vehicle to cross over to the Springs. This steam carriage is manufactured in Toledo by the International Motor Car Company, and this is the longest continuous journey made by an automobile. Steam is generated by using gasoline as fuel, and a supply can be put aboard sufficient to propel the carriage 100 miles, though water has to be taken about every forty miles. It will be exhibited on our streets before they leave for Hot Springs.

GROUT BROS.' AUTOMOBILES.

THE Grout Bros.' automobile plant at Orange, Mass., is one of the best of its size, and the company are turning out one a day, but with this output they are much behind in their orders. Their latest is a touring wagon which is made in several styles, with a wider and longer body than that of other styles, having an average of 72 inches between wheel base, 4 feet 8 inches tread and room for a 36 gallon water tank against a 21 gallon in their first vehicles, and carrying capacity for over seven gallons of gasoline. These carriages are made so as to be used with one or two seats, a front seat unfolding, foot board letting down and room being made for four people if it is desired, and in one style the front seat when used is fully a foot lower than the rear one. There is under the front seat a commodious luggage box and at the rear of the carriage ample space for all the necessary tools. Some of the late improvements are a water

ram by which a person can fill the water tank in five minutes without getting out of the vehicle, simply throwing a hose into a watering trough or brook, and as the water passes through a hot water heater, which is a vent for the exhaust steam, it is almost to a boiling point when it reaches the boiler; an automatic diaphragm regulating the fire; an improved burner to use with their own torch, which is a feature of the Grout carriage, and a lock brake.

In the manufacture of these motors the best of material and the most approved methods of manufacture are employed, and skill and good taste are shown in painting and trimming.

AUTOMOBILE AND CARRIAGE BODIES.

BUILDERS of automobiles as well as carriages should look over the line of bodies furnished by the Cincinnati Panel Co., of Cincinnati, O. The company are bringing out many new styles for the spring and summer trade. Among them are numerous pleasing patterns, notably their stanhopes and surreys. Consult them when preparing for the season's trade.

AUTOMOBILE CORPORATIONS.

RALPH TEMPLE Automobile Co., Chicago; capital stock, \$20,000; incorporators, Arthur L. Schwartz, Carl Hess and Harry Goodman.

Pegasus Automobile Co., Harvey; capital, \$10,000; manufacturing and dealing in vehicles, motors, boats, etc.; incorporators, J. H. Devoe, N. C. Flint, J. A. Chapman.

THE DARLING AUTOMOBILE.

THE Darling automobile, manufactured by the Beardsley & Hubbs Manufacturing Co., of Shelby, O., manufacture a line of automobiles, using as motive power engines of the hydro-carbon type, the engine being of special construction the speed is rated from two hundred to six hundred revolutions per minute, developing eight to ten horse power. The controlling device is simple and the action positive. The gear is constructed of cold drawn steel tubing, put up in the most thorough manner, thus insuring wear. The wheels are of the wire type, with spokes of extra heavy gauge. The supporting frame is of steel angles, securely put together, all the machinery resting upon the frame. The styles of the bodies are pleasing and the accommodations roomy. Their standards are single seat stanhope, with or without top; combination stanhope, a style that can be converted into two or four passenger vehicle at will; a physician's cab, a combination break which can be converted into a delivery wagon, with or without top.

THE CONRAD MOTOR CARRIAGE CO.

AMONG the progressive companies engaged in the manufacture of Automobiles, The Conrad Motor Carriage Co., of Buffalo, N. Y., holds a foremost place. They are having a large sale of their No. 60 stanhope, which is equipped with a five horse-power engine, and is mechanically as perfect as skill and genius can produce. The company has recently installed a large quantity of machinery in order to make prompt delivery of a large order for export, without interfering with their home trade. Their present output averages better than one complete vehicle each day. With their increased facilities they are able to increase their product and to insure prompt delivery.

E. R. THOMAS MOTOR COMPANY.

A TRACT of ground noted as the former home of Ex-President Grover Cleveland, located near the Niagara River in the heart of Buffalo, has been purchased by E. R. Thomas, and a large factory is being erected thereon, which is rapidly approaching completion, for the purpose of building automobile and bicycle motors to which will shortly be added launches and launch motors. This is the first factory in America built solely for the purpose of the construction of automobile motors for the trade and is by far the finest and best equipped. The building is a modern two-story structure 155x120. The building is constructed of pressed brick, stone and iron and is probably one of the best lighted and ventilated factories in America.

Fronting on Niagara, one of the prominent streets, sufficient space is left in front for a lawn which will be decorated with flowers, vines and other landscape features. Sanitary features have also received the highest consideration. Coffee and light refreshments will be served to employees, at nominal cost. From the factory windows

there is a wide perspective which includes beautiful views of portions of the Niagara River, Lake Erie, Canada and Erie Canal. The premises will be lighted with electricity and operated with a gas engine. The factory is equipped with the most modern equipment known to mechanical science for the construction of motors, transmission gears, mufflers, carburetors, spark plugs, and other accessories, and with all the tools, jigs, gauges, etc., etc., requisite for accurate and interchangeable construction. A large room for manufactured and finished stock contains more stock than the average store.

The lower floor is devoted to the office, tool room, machine shop, electric grinding machines for cylinders and piston rings, drill room, power room, motor assembling, etc., all being arranged so that practically the engine starts in the rough at one end and comes out complete at the other end. In rear of the main building are located the nickeling, brazing, enameling, testing and the aluminum, brass and iron foundries. Up stairs is located the automobile and bicycle assembling, paint and carriage shop.

The Thomas people manufacture five styles of high and medium speed motors for automobiles ranging from 3½ to 6 H. P., and two styles of bicycle motors ranging from 1½ to 2½ H. P. They sell automobile motors separately or assembled complete on carriage frame, with two speed and reverse transmission gear, single lever control, mixer, muffler, batteries and induction coil ready to fit on the running gear. The Thomas Co. believe in the superiority of specialty manufactures; their particular specialty being automobile motors. The advantage of specialty work is faintly illustrated as follows: The stationery gas engine is heavy and large, a liberal limit of gauge being allowed in its construction; the bicycle and automobile motor is necessarily light, small, requiring special selection of material and the most absolute care in its construction and working to the very closest limit of gauge, which is a very slow, tedious and expensive operation with the inexpert. After six months of continuous operation by one workman three or four times the work was turned out in a day in a higher state of perfection than during the first few months.

EDGAR S. LUDLOW.

EDGAR S. LUDLOW is now sales manager of the tubular gear department of the Smith Stampings Factory, the Milwaukee plant of the



EDGAR S. LUDLOW.

Automobile & Cycle Parts Co. Mr. Ludlow's headquarters will be in Milwaukee, but he will travel all over the country. He is one of the valued men of the big company. Before receiving his present appointment he was in charge of the company's eastern office with headquarters in New York. He is well acquainted with the carriage makers of the East. Just at present he is traveling in the Western and Middle States, making manufacturers acquainted with the merits of "Hercules" tubular gears.

SECTIONAL PNEUMATIC TIRE.

EVERY effort of the pneumatic tire manufacturers for years past has been devoted at one time or another to devising some means of preventing puncture, the one great objection to that class of rubber tire.

The Sectional Pneumatic Tire Co., of Binghamton, N. Y., now present for the acceptance of the trade, their "Bingo" tire, in which they claim that while all the precautions of good rubber and good fabrics have been used, and as much of both as is consistent with resiliency or speed, the dread of puncture is removed by limiting the damage a puncture can do to a merely local loss in a small part of the circumference of the tire. Sectional solid tires have already been used with success in the trade and a marked similarity in certain peculiarities can be observed in the results obtained.

The tire is constructed in sections, varying in number with the diameter of the wheel. The destruction of one of these little sections does not injure the others. Each section has an inner air tube or sack, and an outer cap or shoe. The inner tube is for air and the outer shoe is for wear. Should you puncture through the outer shoe into the air sack or tube, you can remove the inner tube and replace it without the use of cement. The sections are held in place by a small frame, which surrounds the outer section, this frame being held

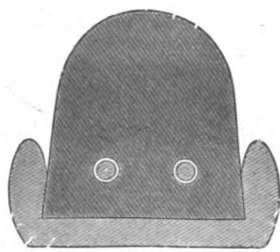


in place by screws. To inflate these sections a pump tube with a lead for each section is used, and as the air is pumped into this tube it inflates all of the air sacks simultaneously. If you puncture one of these sections the rest remain intact, as the air can pass out of only the section injured. The ease of replacement and small weight of an extra section makes it very easy to insure against delay by puncture.

The following claims have been demonstrated as being correct by the company during long and thorough testing to which their tires have been submitted. The tire is especially superior on country roads, as it will mount sand and mud, instead of pushing through it and will not throw the mud as badly as a continuous surface tire. You can ride with a softer tire when ease and resiliency are desired. It runs easily because the displacement of air is broken up at the end of each section, preventing suction. It is almost impossible to make it slip sidewise and it will turn out of car tracks instantly, each section acting as a step. On trotting sulkies it is a speed improver; it stays behind a horse and does not slew off on curves. The advantage of speed is also perceptible in the improved time of automobiles. These tires require only a flat base which does away with the annoyance of putting a crescent rim on a wood wheel.

VICTORIA RUBBER TIRE.

THE Victoria Rubber Tire Co., of Springfield, O., are among the leaders as manufacturers of rubber tires, and in these days of active

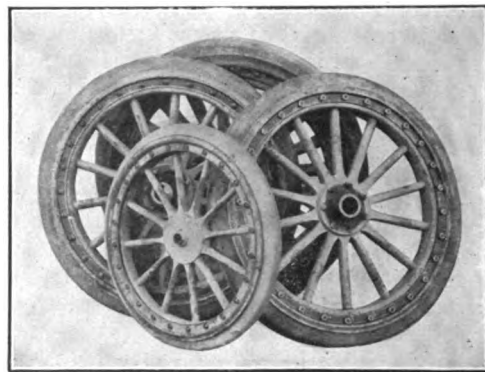


Patents applied for.
VICTOR TIRE.

competition this means good stock, good design and good workmanship. Among the latest is their dovetail, for which special merit is claimed. The company make it clear to the trade that they put out nothing but the first quality.

THE TURNER SOLID TIRE.

THE Hartford Rubber Works Co., of Hartford, Conn., will exhibit the Turner solid tire in Chicago, on wheels of various sizes, as they did in New York, and they are particularly enthusiastic about it, as



TURNER ENDLESS SOLID TIRES.

they are confident that they are creating a great demand for this tire among users of heavy vehicles. The New York Electric Vehicle Transportation Company have equipped nearly all of their cabs in New York with this tire and it is giving surprisingly satisfactory results. They claim for this tire special merit as a tire for automobiles and for other heavy wheels. They will send a descriptive leaflet regarding these tires on application.

FRANK P. HAYES.

FRANK P. HAYES, formerly manager of the vehicle tire department of the New York Belting and Packing Co., recently resigned to take charge of the sales of vehicle tires for the International A. & V. Tire Co., 346 Broadway, New York. Mr. Hayes is well known in



INTERNATIONAL A. & V. TIRE.

the trade, and has had wide experience in this line of business, and THE HUB predicts a most successful career for him in his new position.

KOKOMO RUBBER TIRE.

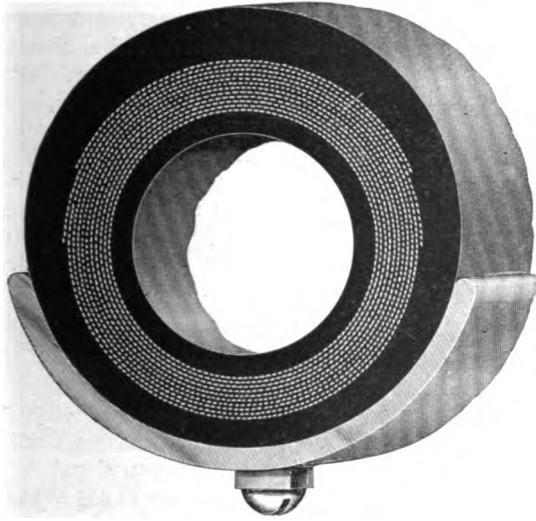
WE illustrate herewith the rubber tire manufactured by the Kokomo Rubber Tire Co., of Kokomo, Ind. This company manufacture but one grade, but all sizes. They aim to give the best wearing



material and best workmanship, thus making their tires durable for all.

THE INDIA RUBBER CO.

THE India Rubber Co., of Akron, O., ask the attention of automobile and carriage builders to their "India" tires, which they claim have superior features to recommend them. They insist that their use has brought joy to the hearts of automobile builders and chauffeurs.

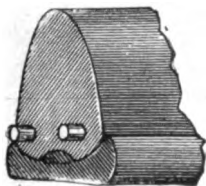


INDIA RUBBER TIRE

The construction is of a heavy sea island fabric and a compound that will wear, making it one of the best of its class. The carriage tires are of equally high quality, being tough and resilient. These have two wires, are easily attached and remain where put. If you will write them they will tell you more about their products and will quote prices that will prove satisfactory.

INTERLOCKING RUBBER TIRE.

THE Southern Rubber Co., of Knoxville, Tenn., and Bloomfield, N. J., have put a new tire on the market. The leading feature is the form of the rubber and the channel upon which it rests. The peculiar

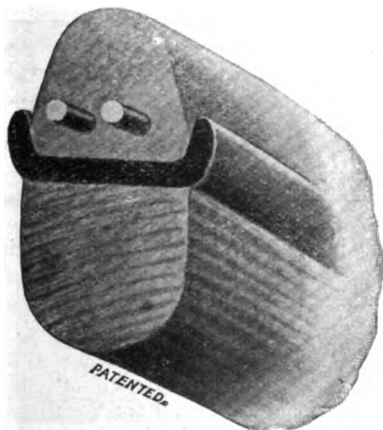


SOUTHERN RUBBER TIRE

formation is shown by the cut herewith. The company are using the best of stock and best workmanship in its production.

KELLY SPRINGFIELD TIRE.

THIS tire is the one handled by the Consolidated Rubber Tire Co., of New York. It has an established reputation in this country and

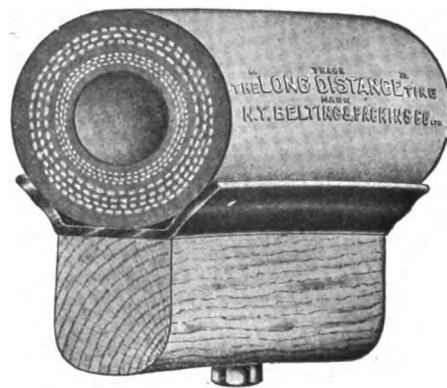


KELLY SPRINGFIELD TIRE

in Europe, and has a strong hold among users of solid rubber tires. The management aim to make nothing that will not stand the full test as to merit in material and workmanship.

THE TIRE QUESTION SUCCESSFULLY SOLVED.

It is conceded that the ideal pneumatic tire for vehicles should be practically puncture proof, guaranteed against ruination by rim cutting when used deflated in emergencies, easy riding and speedy. The rider also has a right to expect a maximum amount of service where good material is used in the construction of the tire. Realizing these facts, the New York Belting & Packing Co., Ltd., gave considerable time and attention to the subject, and as a result decided to manufacture the "Long Distance" tire, which, while only a few years old, is already one of the most popular and best known pneumatics for long distance work and is preferred by many experienced riders. The tire has now been thoroughly tested in actual public service by practically all of the leading carriage manufacturers and a great many of the prominent riders. It has proven conclusively that it possesses all of the above attributes. In the speed and endurance contests in which it has been entered it has always come out first and with the highest honors. There are many sets of these tires now in use that have seen over 4,000 miles' service without any injury from puncture or other mishap whatsoever, and which show no evidence of wear even into the first layer of fabric. There are

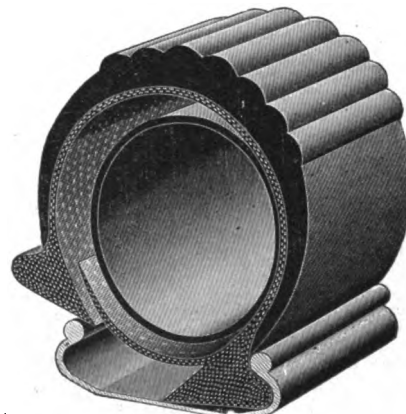


LONG DISTANCE TIRE

thousands of users who stand ready to substantiate the claims made for it by the manufacturer. Some of these opinions have been put into a booklet, which the N. Y. B. & P. Co. will be pleased to send on application. It is certainly safe to remark that it is to the best interests of manufacturer, dealer and rider to look thoroughly into the merits of the "Long Distance" before deciding on tire equipment.

DETACHABLE RUBBER TIRE.

THE G & J Tire Co., of Indianapolis, Ind., are furnishing the trade with a first class tire as to quality and one that is easily removable for repairs or other purposes. It is a pneumatic with corrugated tread, the outer portion being of rubber and fabric so moulded as to lock thoroughly in the channel around an inner tube, as shown by the illustration.



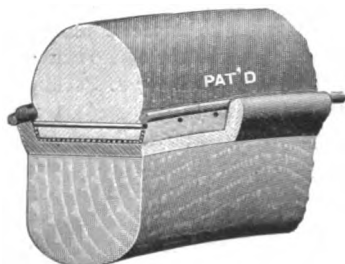
G. & J. RUBBER CO. TIRE

gated tread, the outer portion being of rubber and fabric so moulded as to lock thoroughly in the channel around an inner tube, as shown by the illustration.

FIRESTONE SIDE WIRE TIRE.

THE Firestone side wire tire, manufactured by the Firestone Tire and Rubber Co., of Akron, O., is the one solid rubber tire that is

held in place by side wires. It is constructed with cross bars every three-quarters of an inch, vulcanized in the rubber and an actual part of it. Is retained in the channel by wires at the outer edge resting upon the shoulder formed by these cross bars, which retain the proper place and holds it absolutely solid in channel. Positively no creeping.

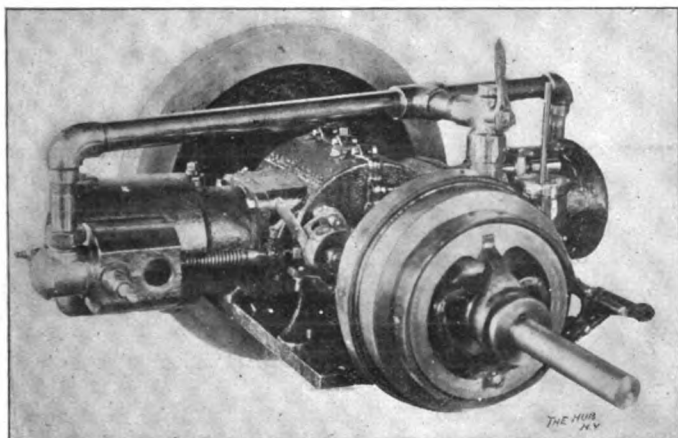


FIRESTONE SIDE WIRE TIRE

Sand and gravel cannot get under it. These tires wear down and leave the channel in perfect condition for new tires. No test can be given a tire more severe than that given by the automobile. The weak points are quickly found, and the strong points emphasized. The "Firestone Side Wire Tire" in actual service of the most severe nature on automobiles and heavy vehicles in New York City is doing good service. This endurance is just as great in smaller sizes but not as quickly discovered on account of the service being so much lighter and the life of the tire so much longer. For either light or heavy work this tire is unexcelled. The company will be pleased to give further information on application.

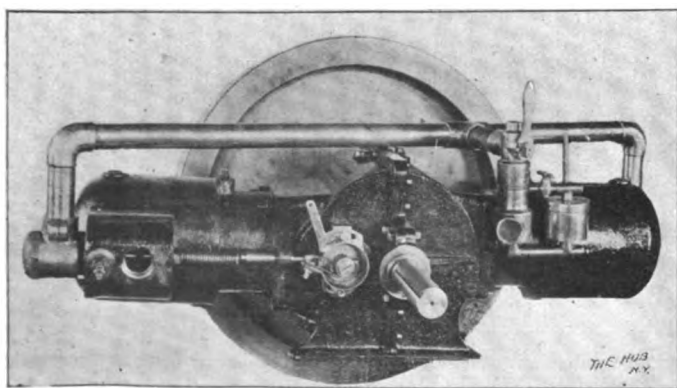
THE BRENNAN MOTOR.

THE Brennan Motor Co., Syracuse, N. Y., are now turning out a line of the double cylinder, water cooled motors shown herewith. As



THE BRENNAN MOTOR CO.'S MOTOR

carriage motors they have proved a great success. Some of the testimonials received by the company from builders of automobiles, and also reports of tests from scientific schools, who have purchased



THE BRENNAN MOTOR CO.'S MOTOR

Brennan motors, are very strong commendations. The company furnish either air or water cooled motors; in fact, the cylinders are interchangeable, making it possible for a change from one process of cooling to the other after the motors are delivered.

AUTOMOBILE CLUB DINNER.

THE third annual dinner of the Automobile Club of America will be held on Friday evening, March 7th, in the Waldorf-Astoria, New York City. The club has extended invitations to M. Jules Cambon, Ambassador of the French Republic; the Chinese Minister, Wu Ting Fang, both of whom are enthusiastic automobilists, and also to the Governors of New York, New Jersey and Massachusetts, Mayor Low of New York, Gen. Nelson A. Miles, Senator Depew, Senator Platt, Thomas B. Reed, William C. Whitney, Gen. Avery D. Andrews, Samuel L. Clemens, Frederick Nixon, Speaker of the Assembly; Jacob A. Cantor, President of Manhattan Borough; Assemblyman Allds, Simeon Ford, Edward A. Bond, State Engineer; Henry I. Budd, Commissioner of Highways of New Jersey; John R. Hegeman, Thomas A. Edison and Martin Dodge.

The Banquet Committee consists of J. M. Hill, chairman; Samuel H. Valentine, Capt. Homer W. Hedge, J. C. McCoy, Bradford B. McGregor, Henry K. Browning and A. H. Whiting.

W. E. ROBY.

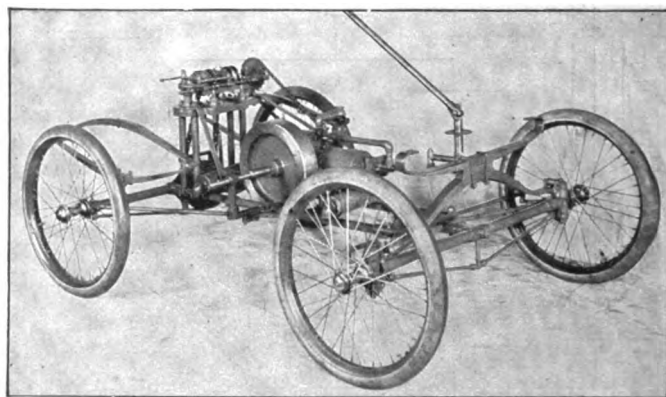
W. E. Roby, who until recently was associated with the vehicle tire department of the Chicago branch of the New York Belting & Packing Co., is now connected with the International A. & V. Tire Co., New York. Mr. Roby's headquarters are at 435 Wabash avenue, Chicago.

AUTOMOBILE STAGE LINE.

AN automobile service between Union Station, the principal hotels and the World's Fair grounds at St. Louis, Mo., is contemplated by the Mobile Co. of America, of Tarrytown-on-the-Hudson. John Brisbin Walker, proprietor of the *Cosmopolitan Magazine*, is the president of the company, which operated a similar line of automobiles at the Pan-American Exposition and is now operating a line between the Cortlandt street and the Wall street ferries, in New York City. An agent of the Mobile Co. has been in St. Louis several days for the purpose of sounding the Exposition authorities on the subject of granting certain rights for the depositing of passengers inside of the fair site. If the arrangement is not made it is understood that the company will invade the city at the coming of the fair and take their share of the passenger traffic to the grounds.

DIEBEL-EPPLER MFG. CO.

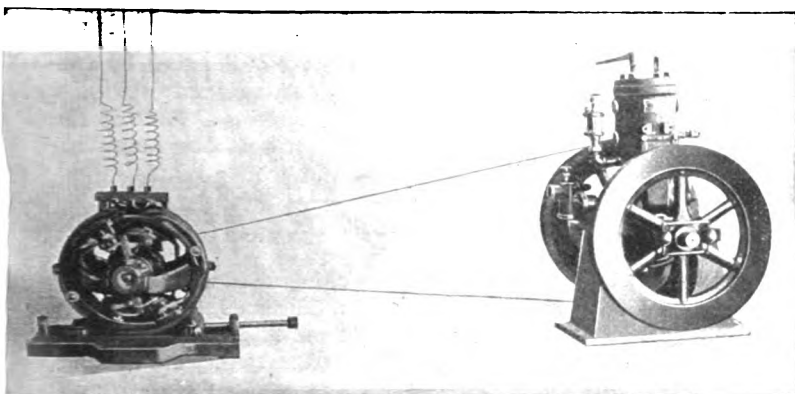
THE above named company are located at Philadelphia, Pa., where they manufacture auto running gears, complete with engine and



transmission, ready for the body. The illustration shows a gear suitable for either pleasure or light delivery wagons, which is offered at a moderate price. It is furnished with an engine of the opposing double cylinder type, water cooled, five actual H. P. at 600 revolutions per minute, and is one of the most quiet running engines ever put on a running gear, vibration being almost entirely absent. Has batteries, sparking coil and carburetter; the tires, Goodyear, unless otherwise ordered. Steering mechanism is either for center or side steering. The transmission gear shown has two speeds, ahead and a reverse, and is furnished with a chain from engine to transmission gear, $\frac{3}{8}$ inch by 1 inch pitch, and from the transmission gear to the differential gear, $\frac{5}{8}$ inch by $1\frac{1}{2}$ inch pitch.

LOWELL MODEL CO.

THE Lowell Model Co., of Lowell, Mass., manufacture a line of stationary gasoline engines, one of which is illustrated herewith. This engine is rated at $1\frac{1}{2}$ H. P. and, belted to the 1 K. W. New England dynamo, runs 16-16 c. p. lamps successfully. These engines are made in several sizes, and are adapted for all power purposes. This company also makes a specialty of gasoline engines for launches



LOWELL MODEL CO. MOTOR

and automobiles. One of their latest propositions is the supplying of castings, forgings and all material necessary to construct gasoline automobiles of the "runabout" type, with full detailed blue print drawings of motors, transmissions and running gears, by the use of which any one of reasonable mechanical ability can construct a successful automobile at a nominal price. Full information may be obtained by addressing the manufacturers, Lowell Model Co., Lowell, Mass., box 1,213.

READING AUTOMOBILE & GEAR CO.

THE Reading Automobile & Gear Co., of Reading, Pa., are manufacturing a line of gears, ready for mounting, with bodies by builders who desire to enter into the automobile field. They have been supplying these gears to some of the largest automobile manufacturers in the States, and are at this time working on some large sized orders for the coming season. The gears are all built on mechanical principles, are adapted to all classes of road work, have flexible joints, ball bearing steering gear, and are equipped with a dust proof self-contained spur compensating gear. They manufacture the Wyoma coaster brakes, and will forward their circular relating thereto on application. This is the fourth season for manufacturing these brakes, and this year they have been improved so as to permit the rear wheel to run backwards, and do not contain any fibre and balls, and does not require any spreading of the frame to insert the brake.

THE HARTFORD RUBBER WORKS CO.

THE Hartford Rubber Works Co., of Hartford, Conn., intend to have quite an extensive exhibit at the Chicago Automobile Show, in which they will show samples of a greater part of the product of their factory. Their line in the carriage and automobile industry is a most comprehensive one and practically covers all of its requirements, offering as they do, pneumatic tires of both single and double tube construction, cushion tires, solid tires, perforated and corrugated matting, rubber tubing, rubber springs, anti-rattlers, tire pumps and rubber material. Their pneumatic tires are the original tires of their respective classes, viz., the Hartford Single Tube and the Dunlop Detachable Tire. These tires in design, material and construction are recognized the world over. This fact is so well and widely known and so generally acknowledged that to argue the point is to confess one's self lacking in information. They make all sizes and weights of these tires for carriages and automobiles and their construction is based upon the load which they are intended to carry. The high grade material used in their pneumatic tire department gives them unequalled facilities for the production of cushion and solid tires unsurpassed in quality. This product may be most favorably judged by the quality of our other goods and few tire makers can afford such comparison. Their exhibit will be in charge of Mr. S. E. Gillard, manager of our Chicago branch. Mr. L. D. Parker, president; Mr. J. W. Gilson and Mr. W. H. Kirkpatrick, special representatives of the company, will also be in attendance.

Items of Interest.

THE SELLE GEAR CO.

In our last issue we called attention to the Selle Gear Co., of Akron, O., but we did not say all we might about this old and well established company, neither did we call attention to their Giant Truck Gear, one of the strongest and most durable gears on the market. The features that entitle it to this distinction are the perfect frame work, by which the best mechanical results are concerned, and by the special trusses and methods of ironing to secure strength. Notwithstanding the strong competition that has developed at times, the business of this company has steadily grown, and it seems as though once a customer always a customer is the rule. Of one thing all may rest assured, that with their work, "what is, is right."

THE ADVANCE IN COACH AND CAR COLORS.

In reviewing the wonderful results of the past century in applied science, we are brought face to face with many subtle developments of nature's materials which, on account of their slow evolution and complex technical applications, fail to receive the recognition their importance deserves. This is particularly true in the field of color. With the rise of the coal tar color industry, manufacturer of pigments for coach and car work had at hand a new basis for results. These products combining wonderful beauty with the essentials of permanency and working properties, gave a new impetus to the industry. Alone, and properly combined with the bases of a mineral nature, they form the bulk of the products now in use. After their general introduction and approval came the usual demands for further improvement and extensions of the good work. In this development the F. O. Pierce Co., of New York, occupy a unique position. Feeling the full force of this progressive movement, they established chemical laboratories within their works and securing proper scientific aid, have stimulated research work in this field to the lasting benefit of the coach and car manufacturers.

The success of this undertaking will be realized when we call attention to such products as the Uzatona Red, Maruna, Rubeina, Aluminum Yellow, Havana Brown and many others that lack of space forbids naming. Our attention was called to one point in this research work that is often neglected and yet it is of great importance to the consumer, namely, the study of undertones in pigment colors—a color may possess a brilliant mass tone and yet when applied fail to maintain the color effect. This is due to lack of strength and brilliancy in its undertone and when applied in actual work the weakness becomes manifest and a negative color effect results.

WHITE MANUFACTURING CO.

THE White Manufacturing Co., of Bridgeport, Conn., is one of the oldest manufacturers in the United States and one that has always maintained a foremost position. Their catalogue for 1902 proves that they are as alert as ever to be at the front in styles and variety of lamps, while all who know the house know that in the mechanical construction their lamps are always A1. They show a line of old favorites and new candidates for public favor for carriages, automobiles, hearses, etc., including in this line, dome lights (electric), reading lamps and other specialties. They furnish oil, candle and electric. Write them for a catalogue.

PATENTS GRANTED.

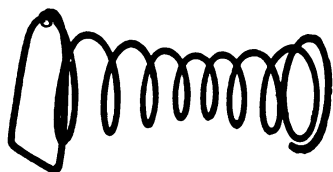
THE Brown-Lipe Gear Co., of Syracuse, N. Y., advise us that patent No. 691,591 was issued to them on January 21st, covering the construction of their models 1, 2 and 6 spur equalizing gears for automobiles. It is stated that a number of imitations are on the market and the company desire to warn the trade against purchasing of others or manufacturing themselves equalizing gears that infringe their patents. They have also been allowed patents, which will soon be issued, on their models 3 and 4. They are sending a general letter to the trade and which to their patrons will be merely a notice of assurance that they are not using compensating gears which infringe.

WHEELS TIRED WITH STEEL AND RUBBER.

FOLLOWING the changes in the wheel industry, caused by the rise of the automobile business, has sprung up a demand for wheels with steel or rubber tires already attached. The difficulty of handling large tires without a complete outfit making it very expensive in small plants. One of the first of our wheel manufacturing concerns to note this tendency and fill the demand is Eberley & Orris, Mechanicsburg, Va. Their fine line of heavy stock in addition to the complete light line carried by them has put them in a position to supply every demand. They have now put in a modern and complete tiring and rubbering plant, which enables them to furnish wheels in the steel and rubber at a large saving of both time and money to consumers.

THE MILLER WIRE SPRING CO.

THE above company ask and answer a few questions as follows: Did it ever occur to you manufacturers who have occasion to do upholstering that it's a costly bit of extravagance to use a cheap spring? Why? Well, a cheap spring is generally not *tempered* properly, and though your cushions and seats look all right to start with, a little usage develops a "sag and bag" tendency that's neither useful nor beautiful. Result? Why, your customer probably characterizes the whole job as "cheap," and very likely it has left such a bad taste in his mouth that he is careful not to buy the same make when in the market again. If he is a real "kicker" he probably gets an entirely new job of upholstering out of you. Now, here's another



THE MILLER WIRE SPRING.

place where you lose too: A cheap spring is hardly ever properly "measured"; it does not stand up straight and stiff. Your workman must even up the line, straighten it out, before he ties the springs; that ought to have been done by the man who made the springs; he could have done it much cheaper than your workman can, but he didn't, so your workman spends a lot of your time doing it and incidentally spends those few pennies which you saved on your original purchase together with several more that you didn't save. It would have paid you to buy the good one at the start, wouldn't it? We suppose "things are not always what they seem" applies to springs as well as other things, but it does seem to us that our "oil tempered" springs are about right. It evidently seems the same way to our customers, for they cling to us, and year after year send in their orders to us. Modesty forbids our ascribing this to personal magnetism or hypnotism. We think it's just because the springs are good. Like the "sandwich man," we always have "just one left" and we'll be glad to send that one to you for a sample. The Miller Wire Spring Co. is a department of the Bridgeport Chair Co., of Bridgeport, Conn. Write them after looking over their advertisement in this month's *HUB*.

THE K. C. BUGGY CO'S. CATALOGUE.

THE Kansas City Buggy Co., whose offices are at Ninth and Carr streets, Cincinnati, and factories at Storrs, O., have issued a very handsomely printed catalogue, showing some fifty half tone illustrations of their vehicles accompanied by descriptions of each. Their line includes buggies, concord wagons, stanhopes, surreys and spring wagons. The styles are well up to date and will, without doubt, meet with a ready sale. The cover is plain blue paper printed in colors.

A LARGE CATALOGUE.

HARBER BROS. Co., of Bloomington, Ill., have issued an extra large catalogue, containing upward of seventy-five illustrations of speeding carts, buggies, concord wagons, surreys, canopy, extension top and open spring wagons, light delivery wagons, phaetons, etc. They accompany each by a description, and in addition publish their guarantee and some information of value to the user.

A GOOD RULE.

THE Atlantic Leather Co., of Newark, N. J., are sending to patrons a neat little celluloid rule which combines the advantages as a measure of space and an index of time, as it has on it a full calendar for the year.

STEEL RIMS.

Steel rims have become an important element of wheel construction, now that rubber tires of various kinds are in demand by carriage and automobile builders. These steel rims are made for wire and wood wheels, for one inch up to four inch tires. Among the large manufacturers in this line is the Wilmot & Hobbs Manufacturing Co., of Syracuse, N. Y.

A NEW COMBINED CATALOGUE.

J. A. FAY & EGAN Co., the large makers of improved wood working machinery, of 421 to 441 West Front street, Cincinnati, O., have just brought out a new complete four hundred and fifty page catalogue, showing to advantage the immense line of machinery they are making for working and cutting wood. The company has heretofore issued separate catalogues, one for the Fay and one for the Egan departments of their establishments, and these catalogues were in their turn pretty large and complete. But to facilitate matters, and enable buyers to gain an adequate idea of the many diversified lines of machines they are turning out, they finally decided to combine the two into a large and complete book, showing each and every machine they make, together with full description and details. They have embodied in this new book all the new and improved machines which they have recently introduced on the market, and most of which have been patented. The catalogue is thus entirely up to date and complete in every particular. This book is invaluable to all wood workers, as it shows entire outfits for car and railway shops; furniture, chair and box factories; saw and planing mills, and special sash, door and blind machinery; wagon, carriage and buggy factories; hub, spoke, wheel and handle works; ship yards, arsenals and technical schools; bridge and agricultural implement builders; trunk, coffin and piano factories and others. The size and character of the book prevents an indiscriminate distribution, but the company will be pleased to forward a copy of it, charges, prepaid, to any manufacturers, foremen and those interested who will write.

THE TROY CARRIAGE SUN SHADE CO.

THE Troy Carriage Sun Shade Co., of Troy, Ohio, in the advertising columns of this issue, call the attention of the trade to the merit of the English canopies manufactured by them. About ten years ago this house began the manufacture of that type of folding canopy known as the "English" pattern, and have so pleased the trade with their product that their goods are seen in the best repositories of the country, and are broadly known as possessing that excellence of style, and that perfection of construction that satisfies exacting trade. In their catalogue for 1902 they make the statement that over one hundred and fifty different sizes are necessary for their trade. This not only suggests the great variation in styles and proportions of vehicles, but shows that these people have high ideals, in that they feel that every canopy should fit its job exactly, and are content with nothing else. They have had practical experience as carriage builders, and seem to be making good use of the knowledge thus acquired.

THOROUGHBREDS.

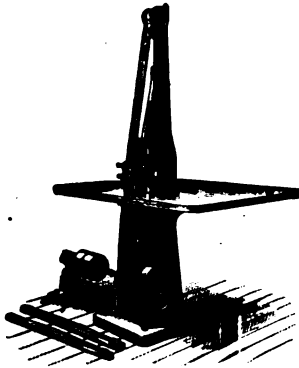
THE Keystone Carriage Co., of Cincinnati, O., are sending out illustrations of the vehicles built by them, on cards printed in colors. These show a fine line of popular vehicles with many new ideas incorporated therein. The company is one that dealers should not overlook when placing orders.

READY FOR BUSINESS.

THE L. A. Bellis Carriage Co., of Somerville, N. J., opened their new three story building for business on February 1st. Polished pine is used for furnishing and ample space is provided for repository and repair shop. Floor space is provided for about seventy-five jobs. The company will handle the best grades only.

NO. 0. VERTICAL FLEXIBLE BELT POLISHING MACHINE.

THIS engraving represents the No. 0 Vertical Flexible Belt Polish-
ing machine, manufactured by The Defiance Machine Works,
Defiance, Ohio, which has been designed for polishing the curved or
irregular surfaces of wooden articles, such as used in the construction
of wagons and carriages, sleighs and agricultural implements. Pre-
vious to its introduction this work was accomplished either by hand-
labor, which was slow and expensive, or by the aid of a horizontal
polishing belt which necessitated the holding of the work in the
hands of the operator and swinging it from right to left to reach all
the parts to be finished, which was also a tedious and laborious
process. By this ingenious device the operator is not obliged to hold



POLISHING MACHINE.

the weight of the piece to be polished or swing it, simply placing it
upon the table, pressing it against the flexible belt which immediately
accommodates itself to the curved surface, and by moving the object
forward does the polishing smooth, uniform and more rapidly than by
any other method. The frame is cast in one piece with corded center,
with a broad floor support. The table of iron is 44 by 60 inches, and
is planed true and smooth on top. The polishing belt is three inches
wide and runs over an idler pulley at the top which is fitted with
spring balances, by which means a most delicate adjustment of the
belt to the work is secured. All the loose pulleys and guide rolls are
fitted with bronze bearings and self oiling devices.

A UNIQUE CATALOGUE.

It has been left to the Banner Buggy Co., of St. Louis, Mo., to
issue the most unique catalogue that has reached our office. It is of
circular form, fourteen and a half inches in diameter, and contains
eighty-two pages. Those that contain carriage illustrations are
printed with a foundation in colored ink over which is printed the
carriage cut and text in black. These colored grounds are each in
different tints. The heavy pages are interleaved with tissue, on
which are printed descriptions of the various vehicles. Back pages
of the heavy leaves are illustrated with cuts and descriptions of
various parts, office views and portraits, repository, various shop and
packing rooms, horses in harness and other matters of interest,
including the company's guarantee. The front of the cover is illus-
trated with flags of all nations forming a border to banner of the
Banner Buggy Co. in red with a black center. The whole, in addition
to its completeness of details, makes a most unique and attractive
catalogue, which bears more evidence of novelty and genius in its
line than any heretofore published in connection with the carriage
trade.

NOW WITH THE JEWEL CARRIAGE CO.

CHAS. F. WEILAND, known as "You'll have to hurry, Bill," for
many years Texas representative for Parry Manufacturing Co., of
Indianapolis, Ind., has severed his connection with that firm, and is
now the Southwestern representative of the Jewel Carriage Co., Carth-
age, O., that well known factory of high grade builders.

HAVE APPEALED.

THE case of the Consolidated Rubber Tire Co. vs. The Goodyear
Tire & Rubber Co., has been appealed and will be tried before the
Court of Appeals in Cincinnati, O., on April 1st.

COSMO CARRIAGE CO.

THE Cosmo Carriage Co., of Glen Rock, Pa., have issued a very
attractive catalogue, illustrating in half tone, the line of buggies,
road wagons, cutunders, surreys, phaetons and specialties. Many of
the styles are more than usually pleasing, while the variety is such
that most tastes can be satisfied. The cover is neat, the company's
name being in gold. The catalogue is one that the receiver will take
care of.

DROP FORGINGS.

THE Billings & Spencer Co., of Hartford, Conn., have issued a
very complete catalogue of drop forgings, of which this company
make a long line, consisting of axles for skeleton gears, round and
swaged pattern, and all the necessary connections, with different
patterns of arms suitable for buggies, stanhopes and surreys; also
Bailey and Premier fifth wheels and forgings for automobiles. The
line is a complete one and the character of the goods high grade.
Send for a catalogue.

TWENTIETH CENTURY CARRIAGE POLISH.

THIS polish is an indispensable solution for preserving the finish
on automobiles, carriages, etc. Everybody knows that the finish on a
carriage will check and get dull by drying out. The Twentieth Cen-
tury penetrates and feeds the finish and makes it like new, and as a
cleaner has no superior. It leaves no greasy, sticky substance for
dirt to stick to, but leaves a clear, hard finish. No repository or
individual should be without it. It is manufactured by L. C. Lambert,
of Anderson, Ind. Send for sample bottle.

THE INDURATED FABRIC TIRE.

MR. A. L. STEVENS, the patentee of the famous indurated fabric
tire, which has scored such a great success on heavy work, has bought
the patents, moulds and stock on hand, as well as all the rights and
good will of the tire business from the Auto Dynamic Co., and will
now carry on the business in his own name. His active management
of the line under the former owners has largely contributed to the
rapidity of the success of the tire and his further efforts in his own
behalf are bound to increase the popularity of these goods.

EUREKA ENAMEL GOODS CUTTER.

G. H. LOUNSBERY & SONS, of Cincinnati, O., have put on the
market a machine for cutting enameled goods or rubber cloths with



ENAMEL GOODS CUTTER

less pressure than is necessary on other machines, giving a perfectly
smooth cut. This machine will be appreciated by those who have
goods in quantities of the character mentioned.

WONDERS OF RUBBER.

BUT few of the productions of the Torrid Zone are of more im-
portance to mankind in general than caoutchouc, or india rubber.
There is hardly a day that india rubber does not in some way con-
tribute to his comfort and well being.

It is a rather remarkable fact that, although rubber producing plants
grow in all tropical and semi-tropical countries, it was entirely
unknown to Europeans until the companions of Columbus noticed the

natives of the West Indies playing with elastic balls. Even then it remained little more than a curiosity until an American, Charles Goodyear, invented the method of vulcanization in 1844.

There is an almost unlimited number of trees, shrubs, plants, vines and creepers from which caoutchouc can be obtained. The only one of these growing wild in Guatemala in sufficient abundance to be of much commercial importance is the *Castilloa elastic*. Here, and in fact all over Central America and down the west slope of the Andes as far south as Peru, this beautiful tree grows in a state of nature and was formerly very abundant. The wasteful and destructive ignorance of the Indian, Carib and half-breed rubber gatherers has reduced its number to such an extent that the government of Guatemala has forbidden the tapping of young trees, and has placed a bounty on plantations to encourage its cultivation. But in spite of government protection it is rapidly disappearing, and in a few more years will be almost unknown, except in the remote and inaccessible forests of the interior.

The *Castilloa* grows in deep, moist forests, along the banks and creeks and rivers. The trees along the Rio Dulce back from Livingston rarely exceed 80 to 100 feet in height, with a diameter at the base of from three to four feet. The leaves are light green in color, rather large, and thinly scattered on the branches. The flowers are also of a sickly greenish hue and of small size, appearing in February and March. In May or June the seed ripens and falls.

The rubber gatherers start out in the woods as soon as the rainy season closes, when the trees are beginning to put forth buds for the next season's growth. The milk flows most freely and abundantly from October to January. A road or path is cut from the camp to each of the trees to be tapped and the gatherers are then ready for business.

In order to obtain the greatest possible amount of milk from the tree it is first tapped as close to the branches as possible, often 30 or 40 feet above the ground, the smooth, straight trunk being ascended by the aid of long ladders and ropes. Sometimes the cuts are made in spiral form around the tree and sometimes V shaped. At the bottom of the spiral or the base of the V a palm leaf is fixed to receive the milk. In a day or two the milk ceases to flow and fresh incisions are made a little lower down. This is repeated until the ground is reached, when the year's "crop" is harvested, and operations must cease until nature has healed the scars.

Every morning and evening the milk is collected in a vessel and allowed to stand for twenty-four hours, when it is coagulated by putting into it the juice of the moon plant, or of the achate, and pouring the mixture into water. After stirring vigorously for a few minutes, it is allowed to stand until the rubber rises to the top, soon hardening into tough, then rubbed or pounded briskly and placed beneath heavy weights to remove the water. The buyers, however, frequently complain that this important precaution is neglected, the gatherers finding it more profitable to sell water and all.

Where the moon plant, or the achate, do not grow plentifully alum is used to coagulate the milk, but this is said to render the gum hard and to injure its elasticity.

Many of the Indians and Caribs find this method of preparing rubber too complicated and laborious, and simply pour the milk over mats or palm leaves, allowing it to harden in the sun. Then they strip it off and it is ready for sale, bringing a considerably lower price than when properly collected and prepared. The Indians of Mexico and Yucatan used to pour the milk over their arms and legs, it being quickly coagulated by the natural heat of their bodies, and then readily peeling off. This method is said to be still practiced by some of the tribes in the interior of Africa.

The laws of Guatemala strictly forbid the tapping of rubber trees less than one foot in diameter; but such laws cannot be enforced in a thinly populated country among half civilized or wholly barbarous tribes. The improvident Indians attack trees of any size they can find and frequently hack them so unmercifully that they never put forth another growth of leaves. In fact, so little thought do they give to the future that they often cut trees down in order to obtain the last ounce of milk possible by tapping every portion of both trunk and branches.

At present the most productive uncultivated rubber districts in Guatemala are among the Polochic, Dulce and Moragua rivers. A tree four feet in diameter and thirty feet high to its first branches will yield twenty gallons of milk annually, each gallon of milk making two pounds of rubber. At the average price of 60 cents per pound this would make the annual income from such a tree amount to about \$24.

The *Castilloa* can be propagated from either seed or cuttings; but the seeds are soft and easily injured, so that cuttings are generally preferred. These root readily and grow rapidly. In from seven to ten years the young trees can be tapped, and will yield a steadily increasing amount of caoutchouc every year for many years, if care is taken not to cut too deeply. The culture of rubber trees is of too recent origin for even an intelligent guess at the life of a plantation.

Considerable plantations of the *Castilloa* have been made in Southern Ceylon, where it seems to thrive as well as in its native forests. In Ceylon trees have attained a height of nearly twenty-five feet in two years.—*Boston Herald*.

OPENED NEW BRANCH.

J. A. FAY & EGAN Co., of Cincinnati, O., manufacturers of standard wood working machinery, have just opened a new branch office at 69 Chapin Block, Buffalo, N. Y., in charge of B. E. Crafts, who will at once go into active business operations to further the interests of the company. Mr. Crafts has heretofore represented the firm as salesman for that territory, but the continually increasing business of the company necessitated this new move, which will enable them to better cater to the wants of the users of wood working machinery.

CARRIAGE RAILS.

Jos. N. SMITH & Co., of Detroit, Mich., manufacturers of carriage rails and name plates, have issued an illustrated catalogue showing their numerous styles. A copy will prove of value to carriage and sleigh builders.

A GOOD REPORT.

THE Cincinnati Panel Co., of Cincinnati, O., report the largest business for January in their experience of body building. As this firm has always been up to date and are turning out a particularly fine line of work, their success is not to be wondered at. Among their 1902 designs you will find all that is new and attractive. They also pay special attention to automobile work. Write for catalogue.

BUSINESS TRAINING FOR AMERICANS IN FRANCE.

CONSUL JOSEPH I. BRITAIN, writing from Nantes, France, under date of October 24, 1901, says:

"In view of the fact that we are finding new markets abroad for our products, I would call the attention of our manufacturers and exporters to one method the European exporter employs to extend and retain trade—a method which, so far as Western France is concerned, has been almost entirely ignored by us. The young men of the United States should be given a practical business training abroad. It is just as essential that the American should have a knowledge of foreign business methods as for him to have a knowledge of the foreign language. These two trade weapons should go together, when markets are to be conquered. Although our enterprise and progress are acknowledged, and we have attained a place in the foremost ranks in the commercial world, we cannot expect to force our crisp and rapid business methods upon the conservative Frenchman. We must gradually convince him of the superiority of our system, but we must in the beginning make certain concessions. Our young men should come to France and obtain employment in some of the large business establishments for six months, one year, or two years, as the exigencies may require. True, wages are low here, but doubtless a number of young men could obtain employment which could at least pay their board, and the experience thus obtained would be beyond value. Large manufacturing and export houses could send young men abroad. In this city of 200,000 inhabitants, I know of but one from the United States who is engaged in business and he is with a retail firm.

"Young men from England, Wales, Belgium and Switzerland are here temporarily, with the leading import houses, getting a practical knowledge of the language and of French business methods. Especially is this true of the coal and the wholesale commission trades, where dealers are made for phosphates, lumber and grain in cargo lots. In such positions, these young men are often able to give valuable pointers to the exporter from their own country. They usually attend to the correspondence from their respective countries,

study French, and obtain an insight into the metric system and French peculiarities in business. I am convinced that the sale of American coal in France during the past year would have been doubled had it not been for lack of information on the part of American producers concerning French trade, and their consequent inability to meet the requirements promptly on this side."

RUBBER IN VENEZUELA.

CONSUL GOLDSCHMIDT writes from La Guayra, May 20, 1901:

I transmit herewith an article from the *Venezuela Herald* treating of the production of rubber in this country. Recently, several individuals have gone into the planting and exploiting of rubber in Venezuela on a rather large scale.

I think that rubber will in the future form a large export staple, which shows that Venezuela can diversify its agriculture. The resources of this country are vast and almost undeveloped in the interior. Ciudad Bolivar, the commercial center on the Orinoco, is already exporting considerable quantities of rubber, as well as balata, etc., and will in the near future be one of the chief markets for this commodity.

THE EXPLOITATION OF CAOUTCHOUC, ON THE UPPER ORINOCO.

The region of the Upper Orinoco, lying between the River Orinoco, the Casiquiare, the Guaima, and the Atabapo, forms a plateau of savannas and forests 230 to 270 meters (755 to 886 feet) above the level of the sea. The southern part of this plateau is drained by the Amazon and the northern part by the Orinoco.

The Amazon, as is well known, is the largest storehouse of caoutchouc in the world. Of the 55,000,000 kilograms (121,253,000 pounds) of caoutchouc produced in the year 1899-1900, more than 25,000,000 (55,115,000 pounds) came from the Amazon. The caoutchouc is of the finest and commands the highest price.

It is on the shores of the Amazon and its numerous affluents that the caoutchouc trees are exploited, and among the affluents is the Rio Negro, which takes its rise in Colombia and serves as boundary between that country and Venezuela for upward of thirty leagues before entering Brazil. The banks of the Venezuelan Rio Negro and of the Casiquiare (an affluent of the Rio Negro) contain numerous areas where caoutchouc trees are found in large numbers. The trees are of the family *Heveas*. They yield a white milk, which is collected and is transformed by coagulating with smoke into balls of caoutchouc weighing about twenty kilograms (forty-four pounds) each.

This wealth of caoutchouc trees continues along the banks of the Orinoco, especially as far as the mouths of the Kentuario. The trees are found in groups which are farther and farther apart as we descend the Orinoco. The trees are scattered about in families in forests composed of many other precious woods. The workmen, in order to exploit the caoutchouc, make tracks or entrances starting from the bank and going into the forest; they find 100 to 150 and sometimes 200 trees per track. It is rare for a track to extend more than one kilometer (0.62137 mile). The plantation, which extends from the branching of the Casiquiare to the mouth of the Kentuario, covering seven kilometers on each bank, has an area of 360,000 hectares (889,560 acres) and contains more than half a million caoutchouc trees. They are found in greater number on the right bank. The crop is gathered carefully, so that they are well preserved and yield each year.

The immense plateau of the Upper Orinoco, where the missions were formerly situated, is isolated by the rapids. Navigation on the Orinoco is easy from its mouth to Atures, where the rapids, scattered over about thirty kilometers (18.64 miles), can be ascended only by light canoes. Beyond Atures, covering about sixty kilometers, are the rapids of Garcita, Balo Pilado, and Guahibos; the first two are at all times navigable, but the last, owing to the power of the current along the narrow channel, can be ascended only during six months of the year, and then only by canoes drawn by ropes; a little farther up we encounter the rapids of Manipures, which do not measure less than eight kilometers (five miles) and are altogether impassable.

From the mouth of the Kentuario, at which the Casiquiare branches, no further obstacle is to be found.

On the side of the Rio Negro, the rapids of the region of San Gabriel are the counterpart of Atures and Manipures in the Orinoco, but offer fewer difficulties. They can be ascended by steamships, if towed with rope at certain points.

The difficulty of communication will be overcome by installing overland routes along the Orinoco rapids, and by lines of native boats of ten to twenty tons over the rapids of the Rio Negro. Along the

Orinoco rapids, overland transport is comparatively easy. The River Atabapo could be bridged at its narrowest part. A donkey or mule path, about seventy kilometers (forty-three miles) long, could be made from Atures to the River Samariapo, above Maipures. At Samariapo, there are excellent pasture lands for animals. The principal difficulty, therefore, is not that of transporting merchandise, but of launching steamships on the upper river; nevertheless, some years ago, a French company took steamships into the region of the rapids mentioned above. A service which connected Ciudad Bolivar with San Fernando de Atabapo and San Carlos by the Orinoco and the Casiquiare existed for many years. The company's ships in the lower river made the voyage twice a month from Ciudad Bolivar to Atures; a day was spent in conveying the goods overland along the rapids of Atures, and another ship continued the journey from Atures to Maipures. In the same way, a day was given to overland transport at Maipures, and a steamship went from there to San Fernando de Atabapo in fifteen to eighteen hours. The service was performed regularly between Ciudad Bolivar to San Fernando in nine to ten days at most.

When once communication has been established, it will be easy and safe to exploit the caoutchouc lands of the Orinoco as those of the Casiquiare.

Two enterprises working in harmony—one on the Casiquiare and the other on the Orinoco—could assist each other in their means of communication and revictualing. The difficulties of the rapids of the Orinoco and of the Rio Negro are as nothing compared with those of San Antonio in the River Madeira, and nevertheless, flourishing plantations exist in Bolivia above this region of rapids, which covers nearly 300 kilometers (186 miles).

All the trade between Brazil and Venezuela passes by the Rio Negro, and the market at Manaus is properly stocked.

The laborers in the southern rivers of Brazil work during six months of the year, and collect 500 kilograms (1,102 pounds) of caoutchouc, which is paid for partly in goods and provisions and partly in money. The laborers of the Rio Negro are scarcely able to collect 250 kilograms (551 pounds), but it must be borne in mind that they generally work only three months of the year, through lack of provisions.

The caoutchouc is bought by the kilogram (2.2046 pounds), and therefore it matters little how much time the workmen spend in collecting it, only it would be necessary to have double the number of hands on the Rio Negro as on the southern rivers, to obtain a like production.

On the Orinoco, in 1899, the caoutchouc was paid for at the rate of 4 to 5 francs the kilogram (77 to 96 cents per 2.2046 pounds); but the greater part was paid in merchandise, on which large profits are gained. Mention must also be made of the export duty of 0.25 francs (4.8 cents) per kilogram, the expenses of packing, shipping, etc. The cost per kilogram in the United States and in Europe reaches 6 to 7 francs (\$1.15 to \$1.35), and it used to be 12 francs. This will show the profits that can be obtained from this business.

There are caoutchouc enterprises in Brazil which export 300,000, 400,000, and even 500,000 kilograms (661,380, 880,840, and 1,102,300 pounds) annually. If the business is well managed, the clearance should be 10 per cent. The capital invested consists of the cost of the property, of buildings, the material employed, and general current expenses. The rest of the money invested, which of course will be an important sum, is a rolling capital which very year goes out and comes back in the purchase of provisions, etc., which are distributed on the spot, and in return for which the caoutchouc is received.

In Brazil, the expenses of exploitation are 20 to 25 per cent. ad valorem, according as it is shipped from Ilanaos or from Belem de Paria. In Venezuela, there is a fixed duty of 0.35 bolivar per kilogram (6¼ cents per 2.2046 pounds). The high export duty in Brazil has given rise to large exploitations in Bolivia and Peru, where only 8 to 10 per cent. ad valorem is paid.

The value of a caoutchouc plantation depends on the number of trees and on the number of laborers. We have already said how much caoutchouc one laborer can gather. It is estimated in Brazil that one tree yields six kilograms (13.2 pounds) of the juice.

The product is divided into three classes—fine, moderate, and cemanby. In a carefully gathered crop, two-thirds should be fine and the other third be divided between moderate and cemanby. When the fine is worth 12 francs (\$2.32), the moderate should be worth 11.60 and 8 to 9 francs (\$2.24 and \$1.54 to \$1.74).

The above indications should be sufficient for those who desire to exploit caoutchouc in the region of the Upper Orinoco.

RECENT PATENTS OF INTEREST TO THE CARRIAGE TRADE.

- 672,533—Wheel Tire and Rim—Henry D. Lefebvre, Alpena, Mich.
 672,644—Controller for Vehicle Steering Mechanism—Albert F. Madden, Newark, N. J.
 672,713—Horseless Carriage—Enrique Sanchis, Madrid, Spain.
 672,718—Automobile Driving Gear—Peter Steinhauer, St. Louis, Mo.
 672,606—Wagon-axle Spindle—Henry Stockman, Marion, Ind.
 672,575—Draft Attachment for Vehicles—George Swinehart, assignor of one-half to C. H. Ice, Glenford, Ohio.
 673,071—Reversing Gear for Motor-Vehicles—Alfred Adamson, Lynn, Mass.
 673,011—Pneumatic Spring for Vehicles—Warren W. Annable, assignor of two-thirds to G. S. Johnson, and J. W. Brown, Grand Rapids, Mich.
 673,110—Motor Vehicle—Gaston A. Bronder, New York, N. Y.
 672,975—Skirt-guard for Vehicles—Alva B. Cole, Petoskey, Mich.
 673,051—Equalizing Attachment for Vehicles—Charles M. Furgason, Anthon, Iowa.
 672,937—Vehicle—George Glascock, Veedersburg, Ind.
 672,900—Body-hanger for End Spring Vehicles—James J. Hanrahan, Cincinnati, Ohio.
 672,941—Automobile—Benjamin F. Jackson, Cambridge, assignor to D. E. Crawford, Boston, Mass.
 672,908—Vehicle Wheel—George S. Lee, Hawthorne, N. J., assignor to Wheel Within Wheel Co., of New Jersey.
 673,084—Axle—James McCauley, assignor to Staver Carriage Co., Chicago, Ill.
 673,215—Automatic Wagon Brake—Charles W. Miller, Port Collins, Col.
 673,341—Apparatus for Mounting Tires—Raymond B. Price, Chicago, Ill.
 673,226—Gearing for Automobiles—Francis J. Stallings, Effingham, Ill.
 672,925—Acetylene Lamp for Vehicles—Raoul Turr, Paris, France.
 673,180—Vehicle Coupling—Washington I. Wolverton, Avery, Ohio.
 673,190—Vehicle Coupling—Washington I. Wolverton, Avery, Ohio.
 34,453—Design, Wagon Body—John H. MacAlman, Somerville, Mass., assignor to Locomobile Company of America, New York, N. Y.
 34,454—Design, Wagon Body—John H. MacAlman, Somerville, Mass., assignor to Locomobile Company of America, New York, N. Y.
 673,415—Hub for Wheels—Wm. P. Bettendorf, Davenport, Iowa.
 673,422—Rein-guard for Vehicle Thills—Joseph E. Coleman, Frankfort, Ind.
 673,390—Wheel for Vehicles—James P. Erie, assignor to Erie Pneumatic Hub Company, Los Angeles, Cal.
 673,433—Vehicle Washer—Skerritt V. Hanley, Milwaukee, Wis.
 673,619—Motor Vehicle—Elwood Haynes and E. Apperson, Kokomo, Ind.
 673,682—Pneumatic Spring for Vehicles—Wm. W. Humphreys, Sheffield, Ill.
 673,442—Vehicle Alarm Bell—Frank Mossberg, assignor to Frank Mossberg Company, Attleboro, Mass.
 673,845—Vehicle Wheel—Alexander Pinover, assignor to L. Cohn, M. Schleestein and J. Pinover, New York, N. Y.
 673,454—Dumping Wagon—Walter F. Ross and C. Stiffler, Muncie, Ind.
 673,850—Vehicle Hub—Edward Sendelbach, assignor of one-half to C. Minshall, Terre Haute, Ind.
 673,481—Thill Coupling—Wm. E. Sherwood, assignor of one-half to W. E. Douglass, Oneida, N. Y.
 673,739—Driving Mechanism for Vehicles—Frank B. Stearns, Cleveland, Ohio.
 673,610—Vehicle Shaft Coupling—Charles L. Weihe, New Minden, Ill.
 34,488—Design, Wagon Body—Wm. Leonhardt, Baltimore, Md.
 34,487—Design, Holdback Iron—Claude R. Silvers, assignor of one-half to A. J. Heavner, Peru, Ind.
 673,857—Coupling for Poles or Thills—George M. Atall, Waukon Junction, Iowa.
 673,994—Carriage Spring—Samuel R. Bailey, Amesbury, Mass.
 673,861—Mechanically Propelled Vehicle—Justelle B. Cummings, Falmouth, Me.
 674,333—Tire for Wheels—Wm. J. Daningburg, New York, assignor of one-half to F. M. Eldredge, Brooklyn, N. Y.
 674,256—Traction Tire for Wheels—Howard M. Du Bois, Ashburn, Pa.
 673,867—Wagon Standard—Wm. K. Fraley, assignor of one-half to W. H. Hostetter, Lebanon, Ind.
 674,115—Wheel Retaining Nut—Christian Heirath, Sacramento, Cal.
 673,970—Doubletree—Wm. E. Lawhorn, Caruthersville, Mo.
 673,880—Sunshade for Buggies—George W. Livesay and T. Boggs, Chillicothe, Ohio.
 674,281—Vehicle Pole or Shaft—Thomas J. Peters, Owingsville, Ky.
 674,178—Wagon Brake—Wm. L. Post, Coldspring, N. Y.
 674,318—Vehicle—Jean Rey, Maxwell, Cal.
 673,964—Burner for Automobile Boilers—Frank A. Reynolds, assignor of one-half to S. H. Manning, Lewiston, Me., and H. C. Parker, New York, N. Y.
 674,221—Vehicle Axle Nut—Cyrillus B. Seaton, Aurora, assignor of one-half to J. C. Seaton, Somonauk, Ill.
 674,320—End-gate for Wagons—Ira F. Sebring, Rossville, Kan.
 674,022—Vehicle Tire—Frank A. Seiberling, Akron, Ohio.
 674,044—Dumping Wagon—Samuel C. Stewart, Philo, Ill.
 34,510—Design Wagon-body—James E. Cochran, Pontiac, Mich.
 Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.
 676,614—Automatic Brake—David H. Andrews, Newton, Mass.
 676,409—Vehicle—Paul E. Berger, Chicago, Ill.
 676,600—Vehicle Brake—John R. Brown, Eau Claire, Wis.
 676,646—Rubber Tire Machine—Samuel W. Collins, Indianapolis, Ind., assignor, by mesne assignments, to Consolidated Rubber Tire Company, Jersey City, N. J.
 676,559—Brake for Wagons—James W. T. and J. P. Irwin, Kenwood, Mo., assignors of one-third to J. M. Irwin, Freeport, Ill.
 676,562—Elastic Wheel Tire—Jens H. Langgaard, Liverpool, England.
 676,682—Thill-coupling—Melvin M. Maxam, assignor to R. E. Abbott, Toledo, Ohio, and G. W. Hasencamp, Chattanooga, Tenn.
 676,683—Holdback Strap Fastener—Melvin M. Maxam, assignor to R. E. Abbott, Toledo, Ohio, and G. W. Hasencamp, Chattanooga, Tenn.
 676,469—Vehicle Body—Harry McLoughlin, Stapleton, assignor to B. E. Kingman, Yonkers, N. Y.
 676,723—Shaft Support—Charles Mee, Jamestown, N. Y.
 676,821—Advertising Vehicle—Ludwig Neumayer, Merseburg, Germany.
 676,822—Advertising Vehicle—Ludwig Neumayer, Merseburg, Germany.
 676,570—Solid Rubber Vehicle Tire—Frank A. Seiberling, Akron, Ohio.
 676,452—Apparatus for Applying Taped or Wired Tiles to Channeled Vehicle Wheels—John H. Toole, Chicago, Ill., assignor to International Automobile and Vehicle Tire Company, New York, N. Y.
 676,856—Wheel Hub and Box Therefor—Ernest H. Wagener, deceased, Modesto, Cal.; S. J. Willson, administratrix.
 676,829—Coupling and Supporting Means for Vehicles—Charles T. Wygant, assignor of one-third to M. E. Wygant, Denver, Col.
 677,174—Spoke Facing Machine—George W. Bugbee, Delhi, Ohio, and P. Lesh, Jackson, Tenn., assignors to J. A. Fay & Egan Company, Cincinnati, Ohio.
 677,156—System of Charging Storage Batteries—George H. Condict, assignor to Electric Vehicle Company, New York, N. Y.
 677,120—Wheel—George W. Cross, Carbondale, Pa.
 677,183—Wheel-repairing Device—Howard W. Denham, Gainesville, Fla.
 677,185—Tire Removing and Replacing Device—Clarence G. Dinsmore, Staatsburg, N. Y.
 677,068—Running Gear for Vehicles—Wm. F. Dodge, Russell, Mich.
 677,073—Wheel-scraper—Peter G. Fogelstrom, assignor of one-half to J. C. Jamieson and F. A. Farrar, Brainerd, Minn.
 677,201—Sunshade for Vehicles—Frank Geiger, Patoka, Ill.
 677,215—Wheel for Road Vehicles—Henry Houldsworth, R. Holmes, and F. Whitaker, Keighley, England.
 677,319—Vehicle Wheel—Emmett McConville, Pittsburg, Pa.
 677,252—Running Gear for Wagons—Jacob Mock, Jr., Louisville, Ky.
 676,965—Means for Recharging Storage Batteries of Electric Vehicles—Joseph Sachs, Hartford, Conn.
 676,997—Manufacture of Axles, etc.—Francis R. Schneider, Crafton, Pa.
 676,998—Rolls for the Manufacture of Axles, etc.—Francis R. Schneider, Crafton, Pa.
 677,290—Pneumatic Tire—Pardon W. Tillinghast, Edgewood, R. I.
 34,694—Design, Wagon-body—Frank L. Davis, Reading, Pa.
 677,771—Means for Collecting Differential Gearing to Driving Axles of Vehicles—Edward T. Birdsall, assignor to Desberon Motor Car Co., New Rochelle, N. Y.
 677,635—Vehicle Brake—Joseph N. Callahan and J. D. Short, Henrietta, N. C.
 677,401—Equalizing Mechanism for Vehicle Wheels—Thomas B. Dooley, Malden, assignor to E. D. Wiggins, trustee, Boston, Mass.
 677,346—Vehicle Top—Wm. J. Estes, Shawnee, Okla, Ter.
 677,575—Vehicle Hub—Zachary T. Kale, Newcastle, Va.
 677,415—Cushion Tire—Webber G. Kendall, Providence, R. I.
 677,520—Wheel-securing Device—Thomas A. Keogh, West Hoboken, N. J.
 677,525—Carriage Wheel—True Loverin, deceased, C. E. Loverin, Nashua, N. H., administratrix.
 677,585—Vehicle—Riley McClaskey, Rockwood, Wyo.
 677,598—Sand Band—Warren H. Robinson, Keene Valley, N. Y.
 677,810—Pneumatic Tire—Uzziel P. Smith, assignor of one-half to T. Kane, Chicago, Ill.
 677,708—Automatic Tire Inflator—George B. Stacy, Boston, Mass., assignor to A. H. Spencer, New York, N. Y.
 677,709—Automatic Tank-pump for Automobiles—George B. Stacy, Boston, Mass., assignor to A. H. Spencer, New York, N. Y.
 677,710—Air-pump for Pneumatic Tires—George B. Stacy, Boston, Mass., assignor to A. H. Spencer, New York, N. Y.
 677,814—Rubber Tire—Charles W. Stapleton, New York, N. Y.
 34,719—Design, Thill-coupling Plate—James L. Kehl and J. Garthe, Northport, Mich.
 34,720—Design, Wagon Stake—George Paul, Hudson, Wis.
 677,846—Brake for Vehicles—Walter H. Adams, Sound Beach, Conn.
 677,847—Dumping Vehicle—Frederick I. E. Akers, Chicago, Ill.
 677,854—Motor Vehicle—Ferdinand E. Canda, New York, N. Y. and L. B. Smyser, Elizabeth, N. J., said Smyser assignor to said Canda.

- 677,945—End-gate—Fred L. Collis, Iowa Falls, Iowa.
 677,968—Compensating Gear for Vehicles—Charles T. Fletcher, Worcester, Mass., assignor to Locomobile Company of America, New York, N. Y.
 677,971—Dumping Device for Wagons—Henry Fox, Bay City, Mich.
 677,867—Vehicle Tire—John W. Hawkins, Cuyahoga Falls, Ohio.
 678,253—Dust-cap and Oil-guard for Vehicle Axles—Wm. F. Hayden, State Center, Iowa.
 678,340—Cushion Tire—Joseph Holland, assignor to W. G. Kendall, Providence, R. I.
 678,184—Thill Coupling—James E. Johnson, Perry, N. Y.
 678,317—Cushion Tire—Webber G. Kendall, Providence, R. I.
 677,875—Engine-protector for Motor Vehicles—George A. Macker, Westboro, Mass., assignor to Locomobile Company of America, New York, N. Y.
 678,015—Vehicle—James H. Moninger, Columbus, Ohio.
 678,025—Vehicle Wheel—Gerrit V. Orton, assignor of one-twentieth to D. Jacks, Monterey, Cal.
 678,303—Wagon Standard—Alfred Page, Georgetown, S. C.
 678,048—Wheel Bearing for Vehicles—Charles S. Smith, Milwaukee, Wis.
 677,897—Driving Mechanism for Motor Vehicles—Louis B. Smyser, Elizabeth, N. J., assignor to F. E. Canda, New York, N. Y.
 678,055—Vehicle Tire—George W. Southwick, Franklin, Mass.
 677,899—Hydro-carbon Burner—John C. Speirs, Worcester, Mass., assignor to Locomobile Company of America, New York, N. Y.
 678,063—Motor Vehicle—Russell Thayer, Philadelphia, Pa.
 678,144—Carriage-steering Mechanism—Robert W. Thompson, assignor to T. B. Jeffery, Chicago, Ill.
 678,067—Wheel for Vehicles—Gustav Tobler, Berlin, Germany.
 678,074—Mail-carrier's Wagon—George A. Town, Framingham, Mass.
 678,149—Vehicle Wheel—Edmund J. Watkins, Cambria, Mich.
 34,753—Design, Vehicle Lamp—Wm. Gray, Amesbury, Mass.
 678,719—Tire Bolter and Cutter—John E. Clark, Janesville, Wis.
 678,555—Tire and Felly Drill—Friedrich W. Forster, Burlington, Iowa.
 678,653—Machine for Setting Rubber Tires—Samuel A. Gaede and H. J. Duckgeischel, Chicago, Ill.
 678,470—Dumping Wagon—Thomas Hill, Jersey City, N. J.
 678,622—Motor Vehicle Driving Mechanism—Thomas B. Jeffery and R. W. Thompson, Chicago, Ill.
 678,744—Hub-attaching Device—Joseph R. Kinley, Chicago, Ill.
 678,413—Mounting Wheels on Vehicles—James Leyland, Rutherford, N. J.
 678,504—Pneumatic Tire—Joseph G. Moomy, assignor to Lake Shore Rubber Company, Erie, Pa.
 678,520—Automobile—Louis C. Savale, Paterson, N. J.
 678,524—Bearing Spindle for Vehicle Axles—John A. Smith, assignor of one-fourth to J. N. Bunch, Kingston, Ark.
 34,803—Design, Carriage Lamp—Charles Billy, Paris, France.
 34,802—Design, Carriage Tire and Rim—Woodburn Langmuir, New York, N. Y.
 678,855—Wagon Coupling Pole—Newton M. Arnold, Helena, Montana.
 678,992—Machine for Cleaning Tires and Rims of Wheels—Thomas L. Barlow, Boston, Mass.
 679,207—Combined Elevator and Dump for Wagon Beds—Henry Barsalou, Moline, Ill.
 679,045—Motor Vehicle—Andrew Benson, and J. B. Benson, assignors of one-half to R. P. and J. P. Price, Chicago, Ill.
 679,165—Combined End Gate and Scoop Board—George Brittell, Albion, Neb.
 679,280—Cushion Tire—James E. Furlong, Providence, R. I.
 679,021—Dust Guard—Henry S. Goughnour, Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania.
 679,000—Vehicle Wheel Having Resilient Tire—Marie Halaubek, Vienna, Austria-Hungary.
 679,230—Vehicle Hub—Wm. J. Holland, Erie, Texas.
 679,024—Starting Means for Autocars—John Hope and W. E. Buckley, Liverpool, England.
 679,001—Autocratic Brake—Johnson Hughes, Wissahickon, Pa.
 679,180—Vehicle Axle—Bishop S. Morden, Buffalo, N. Y.
 678,967—Device for Washing Carriages—Frederick W. Mott, Dunton, N. Y.
 679,032—Thill Coupling—John H. Osborne, Anderson, Ind.
 679,091—Tire-bolting Machine—Frank P. Schaaf, Chandlerville, Ill.
 679,161—Tire-tightener—Wm. Schau, Sheffield, Ala.
 679,192—Whiffletree—Thomas P. Stalcup, Butte, Neb.
 679,094—Tongue-support for Vehicles—Henry M. Susdorf, Rantoul, Ill.
 679,097—Reversing Mechanism for Motor Vehicles—Wm. Van Wagoner, assignor to Century Motor Vehicle Company, Syracuse, N. Y.
 679,269—Thill Coupling—Frederick A. Wegner, Detroit, Mich.
 679,135—Vehicle Running Gear—John E. York, assignor of one-half to G. M. Pillsbury, Lowell, Washington.
 34,827—Design, Vehicle Frame—Walter A. Crowdus, Chicago, Ill.
 34,828—Design, Axle Support for Vehicle Frames—Walter A. Crowdus, Chicago, Ill.
 34,831—Design, Vehicle Body—Ransom E. Olds, Detroit, Michigan.
 34,830—Design, Antirattler for Wagon Bodies—Lee Ward, Yancey, Texas.
 679,493—Wagon Running Gear—Charles E. Belknap, Grand Rapids, Michigan.
 679,461—Thill Coupling—Will J. Kennedy, Erie, Pa.
 679,596—Tire for Wheeled Vehicles—Aurelio Bonfiglietti, Paris, France.
 679,471—Motor Vehicle Construction—John F. Byers, Ravenna, Ohio.
 679,294—Vehicle Wheel—Winfield S. Cannaday, Florence, Ala., assignor of one-third to A. B. Paxton, Alexandria, Ind.
 679,366—Motor Vehicle—Rolla R. Darling, Cleveland, assignor to Beardsley & Hubbs Manufacturing Co., Mansfield, Ohio.
 679,369—Vehicle Body—Alexander J. Diggins, Harvard, Ill.
 679,611—Spoke Finishing Machine—George A. Ensign, assignor to Defiance Machine Works, Defiance, Ohio.
 679,669—Short-turning Gear for Vehicles—Frederich Franz, Brooklyn, N. Y.
 679,313—Vehicle Hub—Wm. F. Hembrey, assignor of one-half to T. Lawson and T. Keen, Hutchinson, Ark.
 679,624—Side Apron for Vehicles—Thomas H. Joyce, Brooklyn, N. Y.
 679,702—Spokeshave—Walter D. Murray, assignor of one-half to W. Ackroyd, Portland, Maine.
 679,539—Top Box Fastener for Wagons—Mark Nosal, Humphrey, Neb.
 679,571—Vehicle Wheel—Denis H. O'Meara, Worcester, Mass.
 679,342—Clamping Device for Log Wagons—John A. Sifford and T. Shaver, Cherry Valley, Ark.
 679,522—Metallic Vehicle Wheel—Edwin D. Wassell, assignor to A. I. Wassell, Pittsburg, Pa.
 34,866—Design, Vehicle Seat Handhold—W. B. C. Hershey, Columbus, Ohio.
 34,867—Design, Vehicle Seat Handhold—W. B. C. Hershey, Columbus, Ohio.
 679,822—Vehicle Door—Wm. Bahrenburg, Belleville, Ill.
 680,108—Coupling for Whiffletrees—Thore A. Bakken, De Soto, Wis.
 680,110—Wheel Box and Axle—Delbert E. Barton, Minneapolis, Minn.
 679,838—Buggy Top Raiser—John C. Ford, Macon, Mo.
 680,158—Seat for Vehicles, etc.—Frank M. Light, Edgerton, Ohio.
 680,049—Go-cart—Harry Levi, Philadelphia, Pa.
 679,773—Spring-motor Vehicle—James L. McDowell, assignor of one-half to C. H. Dodge, St. Louis, Mo.
 680,074—Motor Vehicle—Leon W. Pullen, Camden, N. J.
 680,006—Whiffletree—Wm. H. Spillman and A. E. Roach, Leamington, Canada.
 680,094—Buggy Top—Jesse O. Wells, Des Moines, Iowa.
 679,810—Vehicle Gear—Frank E. Wilcox, assignor of one-half to L. E. Hickok, Mechanicsburg, Pa.
 680,103—Starting Device for Oil or Gasoline Engines for Automobiles—Jacob P. Wright, New Haven, Conn., and J. N. Wright, Newark, N. J.
 680,307—Motor Vehicle—George B. Anderson, Washington, D. C.
 680,633—Metal Wheel—Daniel J. C. Arnold, New London, Ohio.
 680,424—Hub for Vehicle Wheels—Andrew Benson, assignor of three-fourths to J. P. Price and R. P. Price, Chicago, Ill.
 680,312—Rubber Tire Setting Machine—Joseph A. Burrows, Akron, Ohio.
 680,224—Vehicle Wheel—Julian E. Camp, Brooklyn, Ill.
 680,641—Ball-bearing for Wheels, etc.—John J. Clarke, assignor of two-thirds to W. J. Hendricks, Washington, D. C., and E. Y. Brady, Muncie, Ind.
 680,569—Manufacture of Vehicle Tires—Frederick G. Davis, Chicago, Ill.
 680,237—Motor for Automobiles Driven by Explosion of Inflammable vapors—Maurice A. Eudelin, Paris, France.
 680,581—Combination Wagon-body—Charles Gabel, Andrew, Iowa.
 680,455—Tire-heater—Jacob Gogel, Toledo, Ohio.
 680,595—Manufacture of Hollow Blooms for Producing Tubes, Hollow Shafting, Axles, etc., from Common Puddled Iron or other Metals—John G. Inshaw, assignor of two-thirds to F. and F. Billing, Birmingham, England.
 680,332—Elastic Tire—Wm. Kightlinger, Marysville, Ohio.
 680,602—Motor Vehicle—Charles A. Lieb, New York, N. Y.
 680,255—Wheel—Hyman Lieberthal, Chicago, Ill.
 680,256—Wheel—Hyman Lieberthal, Chicago, Ill.
 680,388—Axle Lubricator—Thomas H. McCauley, Port Arthur, Canada.
 680,535—Apparatus for Charging Storage Batteries of Automobile Vehicles—Joseph B. Meriam, Cleveland, Ohio.
 680,668—Automobile Vehicle—Alden E. Osborn, New York, N. Y.
 680,392—Means for Securing Resilient Tires to Vehicle Wheels—Harry A. Palmer, Erie, Pa.
 680,358—Automatic Vehicle Brake—Jesse D. Richards, Wabash, assignor of one-half to E. Gillenwater and E. Baker, Sims, Ind.
 680,618—Electric Automobile motor—Charles Richter and R. T. Eschler, Camden, N. J.
 680,619—Electric Traction Motor—Charles Richter and R. T. Eschler, Camden, N. J.
 680,444—Safety Stop for Vehicles—Arthur L. Stevens, New York, N. Y.
 34,932—Design, Pneumatic Tire—Isaac S. McGiehan, New York, N. Y.
 34,930—Design, Whiffletree-clip Member—Washington I. Wolverton, assignor to Buckeye Manufacturing Company, Anderson, Indiana.
 34,931—Design, Whiffletree-clip Member—Washington I. Wolverton, assignor to Buckeye Manufacturing Company, Anderson, Indiana.
 682,901—Vehicle Frame—William Barber, assignor to A. S. Barber, Brooklyn, N. Y.

- 682,973—System and apparatus for loading and unloading storage batteries from motor vehicles—George H. Conduct, assignor to Electric Vehicle Co., New York, N. Y.
- 682,977—Resilient or Elastic Tire—Ernest A. Dibbens, assignor to C. G. Fawkes, Denver, Col.
- 682,917—Tire—John M. Doan, assignor of one-half to E. W. Synwolt, Mishawaka, Ind.
- 682,606—Explosive Engine for Motor Vehicles—Charles E. Duryea, Elizabeth, N. J.
- 682,983—Motor Vehicle—Hiram A. Frantz, Allentown, assignor of one-half to W. A. Wieder, Cementon, Pa.
- 682,610—End Gate—George W. Gifford, assignor of one-half to H. L. Read, Kinsley, Kan.
- 682,927—Fifth Wheel—Jacob Gogel, Toledo, O.
- 682,801—Controlling device for Motor-Vehicle Driving Trains—Thomas B. Jeffery, Chicago, Ill.
- 682,633—Tire for Vehicle Wheels—William F. Masters, Brooklyn, N. Y.
- 682,628—Water Feed for Boilers—Samuel D. Mott, Passaic, assignor to Motormobile Co., Jersey City, N. J.
- 682,881—Automatic Wagon Brake—George S. Neal and H. C. Neal, Eddyville, N. Y.
- 682,642—Means for controlling Electric Motor Vehicles—Joseph Sachs, Hartford, Conn.
- 682,834—Dumping Wagon—Wm. O. Shadbolt, Brooklyn, N. Y.
- 682,760—Thill Coupling—Wm. C. Shipherd, Cleveland, O.
- 682,655—Thill Coupling—Frederick A. Wegner, Detroit, Mich.
- 682,771—Fender for Vehicles—Wm. F. Weiss, Camden, N. J., assignor to U. S. Fender Co., of New Jersey.
- 682,773—Pneumatically Propelled Vehicle—Wm. J. White, Cleveland, O.
- 682,775—Automobile—Melvin A. Yeakley, Kamms, O.
- 35,109—Design, Vehicle Body—Edward B. Gallaher, Philadelphia, Pa.
- 35,110—Design, Vehicle Body—Edward B. Gallaher, Philadelphia, Pa.
- 35,106—Design, Bolster Plate for Vehicles—Targe G. Mandt, Stoughton, Wis.
- 683,200—Motor Vehicle—Edwin S. Dore and G. Evanovitch; said Evanovitch assignor to L. A. Evanovitch, London, England.
- 683,027—Vehicle Brake—Thomas J. Emerson, Shuler, Ark.
- 683,310—Hub Attacher—Targe G. Mandt, Stoughton, Wis.
- 683,220—Wheel—Samuel F. Neill and J. E. Tinker, assignors of three-fifths to P. B. Broughton, S. L. Rhodes and M. Cohn, Bradford, Pa.
- 683,145—Automatic Vehicle Brake—Louis H. Rickles, Buford, Ala.
- 683,345—Cushion Tire—Frederick W. Skinner, Valley Falls, R. I., assignors to Advance Tire Co., of South Dakota.
- 683,415—Machine for nutting and facing Wagon Skeins—Arthur L. Warner, Carpentersville, Ill.
- 683,365—Tire—William J. Wittman, Rochester, N. Y.
- 683,432—Apparatus for lighting Vehicles by electricity—Benny Bernstein, assignor of one-fourth to B. Loewy, New York, N. Y.
- 683,550—Thill Coupling—John M. Bryant, Minneapolis, Minn., assignor of one-half to J. L. Henry, Chicago, Ill.
- 683,638—Wheel Tire—George H. Clark, Boston, Mass.
- 683,739—Vehicle Brake—Sydnor M. Falconer, Dinwiddie County, Va., assignor of two-thirds to R. J. Meagher, Washington, D. C.
- 683,740—Pneumatic Wheel Tire—Albert M. Ferguson, Winnipeg, assignor of two-thirds to T. C. Allum and H. D. Metcalfe, Montreal, Canada.
- 683,741—Body-hanger for Vehicles—James J. Fetzer, Columbiana, assignor to Herbrand Co., Fremont, Ohio.
- 683,459—Valve Gear for Diesel Motors—Arthur J. Frith, assignor of Diesel Motor Co. of America, New York, N. Y.
- 683,854—Thill Coupling—James A. Green, Milldale, Va.
- 683,612—Running Gear for Vehicles—Judson E. Locke, Quincy, Mass.
- 683,704—Motor Vehicle—Hugh Partridge, assignor of one-half to I. L. Harris, Jacksonville, Fla.
- 683,495—Wagon-body Raiser—John H. Priestley, Cherokee, Iowa.
- 683,805—Vehicle Tongue—Halvor O. Sageng, Minneapolis, Minn.
- 683,509—Whiffletree Clip—Charles Smallwood, Washington, D. C.
- 683,866—Wagon Brake—John F. Stoner, Sr., near Dixie, Ind.
- 683,671—Vehicle Roller Chafe Iron—Wm. Tron, Indianapolis, Ind.
- 683,673—Under Frame for Automobiles—Harry M. Wells, Bridgeport, Conn., assignor to Locomobile Co. of America, New York, N. Y.
- 683,583—Vehicle Wheel—Paul H. White, assignor to White Steam Wagon Co., Indianapolis, Ind.
- 683,828—Wagon Body—Myron L. Winans, Waco, Texas.
- 684,393—Thill or Tongue Support—Charles A. Benkert, assignor of one-half to E. J. Spink, Davenport, Iowa.
- 684,039—Dumping Wagon—Henry Bitner, Sr., Harrisburg, assignor to A. H. Ege, Mechanicsburg, Pa.
- 684,174—Dumping Wagon—John Blake, Langford, Col.
- 683,904—Vehicle having Roller Bearings—Wm. J. Brewer, assignor to National Roller and Ball Bearing Co., Washington, D. C.
- 684,189—Spring Mounting for Motor Vehicle Frames—John F. Byers, Ravenna, Ohio.
- 684,207—Wheel Hub—Emil Einfeldt, Davenport, Iowa, assignor to Bettendorf Metal Wheel Co., of Illinois.
- 684,050—Manufacture of Tires for Vehicle Wheels, etc.—Henri Falconnet and M. Perodeaud, Choisy-le-Roi, France.
- 683,925—Thill Coupling—James L. Frazier, Peoria, Ill.
- 683,926—Thill Coupling—James L. Frazier, Peoria, Ill.
- 684,365—Hood for Buggy Tops—John P. Gordon, Columbus, O.
- 684,368—Steering Apparatus for Vehicles—Charles R. Greuter, Holyoke, Mass., assignor to Holyoke Automobile Co., Jersey City, N. J.
- 684,371—Motor Vehicle—Arthur A. Hamerschlag, New York, N. Y.
- 684,064—Dumping Wagon—Isaac N. Inks, Ransom, Ill.
- 684,259—Vehicle Brake—Reynold Janney, assignor to Steamobile Co. of America, Keene, N. H.
- 683,943—Tire-attaching Mechanism—Wm. Jennings, Montreal, Canada.
- 684,265—Motor Carriage Running Gear—Harry T. Kingsbury, Keene, N. H.
- 684,273—Rubber Tire—Wm. W. Leavenworth, Batavia, N. Y.
- 684,071—Vehicle Pole—August Lindgren, Moline, Ill., assignor to Moline Plow Co., of Illinois.
- 684,285—Hub Stretcher—Elenore Mazier, Paris, France.
- 684,300—Vehicle Wheel—Denis H. O'Meara, Worcester, Mass.
- 683,977—Motor Vehicle—Alexander Palmros, assignor to J. A. Jeffery, Columbus, O.
- 684,095—Storm Front for Buggies—Arthur A. Prall, Dayton, Iowa.
- 684,308—Thill Coupling—Joseph C. Regan, assignor to M. A. Re-
- 684,125—End Gate—Wm. Strader, Clinton, Iowa.
- 684,146—Apparatus for applying Rubber Tires to Vehicle Wheels—John G. Webb, assignor to Victor Rubber Co., Springfield, O.
- 684,157—Elastic Tire—Wm. F. Williams, London, England.
- 684,158—Elastic Tire—Wm. F. Williams, London, England.
- 35,176—Design, Anti-rattler for End Gates of Wagons—Lee Ward, Yancey, Texas.
- 684,397—Gallop Horse and Sulky—Hanson H. Adams, Everett, Mass.
- 684,664—Hub-attaching Device—Nathan S. Anderson, Kerens, Texas.
- 684,535—Motor Vehicle—Edward T. Birdsall, New Rochelle, assignor to Desberon Motor Car Co., New York, N. Y.
- 684,671—Seat-supporting Attachment for Wagons—James M. Calhoun, Lincoln, Neb.
- 684,417—Support for Wheel Tires—Julius S. Duquette, South Gardner, Mass.
- 684,754—Driving and Steering Gear for Automobiles—Charles Hall, St. Louis, Mo.
- 684,639—Wheel—Charles Heart, Frankton, Ind.
- 684,516—Automobile Vehicle—George D. Leechman, Coventry, England.
- 684,453—Driving Gear for Vehicle Wheels—Alexander N. Neeper, Pittsburg, Pa.
- 684,550—Pneumatic Tires for Vehicles—Charles A. Pettie, Brooklyn, N. Y.
- 684,527—Mechanism for Self-propelled Vehicles—Gustaf L. Reenstierna, Winchester, Mass.
- 684,470—Wheel Hub—George H. Sprinkle, assignor of one-half to A. Z. Yeary, E. F. Holden and G. W. Gish, Pennington Gap, Va.
- 684,652—Vehicle Axle—Charles L. Thomas, Amsterdam, N. Y.
- 684,733—Motor Vehicle—George E. Warren, Boston, Mass.
- 684,657—Gearing for Self-moving Vehicles—Frank G. Webb, Brooklyn, N. Y.
- 685,087—Running Gear for Automobiles—Frank L. Balcomb, Salem, Mass.
- 684,976—Thill Coupling—Christopher C. Bradley, Syracuse, N. Y.
- 684,907—End-gate for Wagons—Lewis C. Carpenter and M. Sproul, Wright, Iowa.
- 684,908—Reach for Vehicles—John W. Cloninger, Pearl, Ill.
- 684,793—Motor Vehicle—Frederick S. Coles, Balham, England.
- 685,232—Ball-bearing Wheel—Wm. M. Conway, assignor of two-thirds to J. S. Lemmon, C. B. Roberts, Jr., and H. Carlton, Baltimore, Md.
- 685,113—Vehicle Spindle—Joseph Darling, Chicora, Pa.
- 684,922—Tread-shoe for Vehicle Wheels—Wm. R. Donaldson, assignor of two-thirds to W. O. Worth, Chicago, Ill., and H. W. Kellogg, Battlecreek, Mich.
- 684,925—Neck-yoke—Marshall B. Eaton, Holcomb, assignor of one-half to H. Munson, East Bloomfield, N. Y.
- 684,809—Vehicle Brake—John H. Garrett, Steubenville, Ohio.
- 684,930—Mechanism for Motor Vehicles—Darwin Hanauer, Long Island City, and T. Veitch, assignors to Daimler Manufacturing Company, Long Island City, N. Y.
- 684,833—Speed Changing Device for Self-propelling Vehicles—Hermann Lemp, assignor to E. Thomson, Swampscott, Mass.
- 684,997—Spring Hub—Robert A. Matheson, Grand Rapids, Mich.
- 684,839—Auxiliary Spring for Vehicles—Emil W. Maulhardt, St. Louis, Mo., and O. L. Frain, Ovid, Mich.
- 685,002—Pneumatic Tire for Vehicles—Isaac S. McGiehan, New York, N. Y.
- 684,947—Coupling and Spring for Vehicles—Solomon E. Oviatt, Lansing, Mich.
- 685,174—Wheel for Road Vehicles—Charles Renard, Paris, France.
- 685,180—Tire for Vehicles—Wm. H. Sewell, Belfast, Ireland.
- 684,953—Pumping Device for Automobiles—Wm. F. Singer, New York, N. Y.
- 684,958—Tire Shrinker—John H. Thompson and T. P. McCullough, Nevada, Mo.
- 684,891—Buggy Shaft Support—Cullen D. White, Gleeson Station, Tenn.
- 685,077—Elastic Tire—Wm. F. Williams, London, England.
- 685,023—Brake Shoe—Benjamin Wolhaupter, Chicago, Ill.

684,895—Vehicle Wheel—Wm. O. Worth and W. R. Donaldson, Chicago, Ill., assignors of one-third to H. W. Kellogg, Battlecreek, Mich.
 684,898—Thill Coupling—Francis J. Zecher, assignor to Zecher Coupler Company, Lancaster, Pa.
 35,210—Design, Motor Vehicle Frame—Edward B. Gallaher, Philadelphia, Pa.
 35,209—Design, Vehicle Tire—Alvie V. Kiser, West Liberty, Ohio.
 685,240—Brake for Road Vehicles—George V. Allen and J. E. Schumacher, York, England.
 685,367—Combination Air and Gas Engine—Charles A. Anderson, E. A. Erickson, and J. Wickstrom, assignors to Chicago Motorcycle Company, Chicago, Ill.
 685,246—Automatic Vehicle Brake—James D. Boden, Paris, France.
 685,564—Thill Coupling—Edward P. Bowles, Wolfville, Canada.
 685,250—Whiffletree Snap—Harrison H. Brown, Fond du Lac, Wis.
 685,567—Steam Boiler and Burner Therefor—James H. Bullard, Springfield, assignor to Overman Automobile Company, Chicopee, Mass.
 685,568—Boiler Feeding Device—James H. Bullard, Springfield, assignor to Overman Automobile Company, Chicopee, Mass.
 685,569—Gradometer—James H. Bullard, Springfield, assignor to Overman Automobile Company, Chicopee, Mass.
 685,570—Steering Device for Self-propelled Vehicles—James H. Bullard, Springfield, assignor to Overman Automobile Company, Chicopee, Mass.
 685,450—Vehicle Wheel and Means for Attaching Rubber Tires Thereeto—Wm. J. Kent, Brooklyn, N. Y.
 685,626—Tank-filling Device for Steam-propelled Vehicles—Wm. B. Mason, Boston, Mass., assignor to Mason Regulator Company, Saco, Me.
 685,629—Fifth-wheel—James McLaughlin, Ovid, Mich.
 685,627—Vehicle Wheel—Charles Miller, Binghamton, N. Y.
 685,412—Combined Thill Coupling and Anti-rattler—Gordon L. Schermerhorn, Medford, Ore.
 685,436—Anti-rattling Thill Coupling—Reuben E. Sears, Marshalltown, Ia.
 685,540—Steering Mechanism for Vehicles—Alfred Thompson, Geneva, Ohio, assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y.
 685,312—Shafting Hanger—Alfred Weed, Anderson, Ind.
 685,658—Driving Mechanism for Automobiles—Rollin H. White, assignor to White Sewing Machine Company, Cleveland, Ohio.
 685,703—End-gate—Daniel Wilde and F. Stewart, Washington, Iowa; said Wilde assignor to said Stewart.
 685,364—Tire Tightener—Wm. G. Williamson, Abbott, Fla.
 35,244—Design, Spoke Holder—Johiel Jackson, Columbus, Wis.
 686,196—Vehicle Scale—Thomas Bennett, Worthington, Ind.
 686,041—Wheel Hub—Emil Einfeldt, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company.
 686,046—Motor Carriage—Henry Ford, assignor to Detroit Automobile Company, Detroit, Mich.
 685,917—Device for Equipping Vehicle Wheels with Rubber Tires—Arthur W. Grant, Springfield, Ohio, assignor, by mesne assignments to Consolidated Rubber Tire Company, Jersey City, N. J.
 686,082—Vehicle Wheel—Joseph H. Judge, Milwaukee, Wis.
 686,229—Locking Device for Steering Mechanism of Automobiles—Albert L. Kull, Camden, N. J.
 686,099—Motor Road Vehicle—Alonzo C. Mather, Chicago, Ill.
 686,102—Steering Mechanism for Motor Vehicles—Wilhelm A. Maybach, Connstadt, Germany, assignor to Daimler Manufacturing Company, New York, N. Y.
 686,235—Running Gear for Motor Carriages—Ralph L. Morgan and W. H. Edmondson, Worcester, Mass., assignors, by mesne assignments, to American Bicycle Company, Jersey City, N. J., and New York, N. Y.
 686,126—Vehicle Tire—Robert G. Pilkington, St. Louis, assignor of one-half to A. Gratz, Kirkwood, Mo.
 686,140—Vehicle Propeller—Robert C. Roth, Killion, Ind.
 686,160—Wheel Hub—Frederick Stacy, H. E. Murphy and C. B. Hudson, Wabash, Ind.
 686,016—Combined Storm Apron and Sunshade—John W. Williams, Byron, Mich.
 35,269—Design, Singletree Hook—James Chidester, assignor of one-half to F. L. Long, Sibley, Iowa.
 35,271—Design, Body for Ambulances or Wagons—Wm. E. Marbaker, Philadelphia, Pa.
 35,270—Design, Rim and Tire Member for Vehicles—Nelson C. Whitney, Riverside, Cal.
 686,587—Load-retaining Apparatus for Vehicles—Wm. M. Cain, Carlton, Minn.
 686,588—Axle Lubricator—Andrew R. Carr, Baltimore, Md.
 686,269—Boiler Tube—Joseph Devantery, Brooklyn, assignor to Locomobile Company of America, New York, N. Y.
 686,454—Shaft Coupler and Anti-rattler—Robert H. Hearn, Dyer, Tenn.
 686,520—Jump-seat for Vehicles—George H. Hutton, Jr., Baltimore, Md.
 686,406—Combined Shaft-support and Anti-rattler—George S. Johnson, Crowley, La.
 686,310—Motor Attachment for Road Vehicles—Henry J. Lawson, London, England.
 686,463—Vehicle Wheel—George S. Lee, Hawthorne, N. J.
 686,678—Seat for Two-wheeled Vehicles—Alonzo P. Millard, Dayton, Ohio, assignor to W. J. Brewer, Newark, N. J.

686,410—Vehicle Axle—Armstead R. Long, Dekoven, Ky.
 686,537—Wagon or Other Vehicle—Jay B. Rhodes, Harvey, assignor to F. C. Austin, Chicago, Ill.
 686,546—Spoke Tenoning and Cut-off Machine—Charles Seymour, assignor to Defiance Machine Works, Defiance, Ohio.
 686,547—Automatic Wheel-rim Finishing Machine—Charles Seymour, assignor to Defiance Machine Works, Defiance, Ohio.
 686,361—Driving Gear for Motor Vehicles—Henry Spurrier, Jr., St. Annes-on-the-Sea, England.
 686,556—Means for Securing Elastic Tires to Wheels—James A. Swinehart, and W. A. Byrider, Akron, Ohio.
 686,495—Vehicle Shaft—Thomas J. Waddell, Philbrook, Mont.
 686,684—Steering Gear for Vehicles—Paul H. White, assignor to White Steam Wagon Company, Indianapolis, Ind.
 686,643—Vehicle Brake Mechanism—Wm. Winkler, Syracuse, N. Y.

Copies of above patents may be obtained for 10 cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

MERCHANTS' ASSOCIATION OF NEW YORK.

THE annual meeting of members of the Merchants' Association of New York was held on January 14th, at which meeting five directors of the board of fifteen were elected to succeed those whose terms expired at that time. The newly elected directors are George F. Crane, of Baring, Magoun & Co.; Adolph Openhym, of William Openhym & Son; George L. Duval, of Beeche, Duval & Co.; each to succeed himself, and George Frederick Vietor, of Vietor & Achelis, to succeed Alvah Trowbridge, and Herbert L. Satterlee to succeed Hon. John H. Starin.

There were also three vacancies in the Board, created by the resignations of Messrs. William E. Tefft, Corcellus H. Hackett and Meyer Jonasson, who were unable to longer give the time and attention necessary to the increasing work of the association. These vacancies were filled, under the provisions of the By-Laws, by the board of directors, who elected, to succeed the members who had resigned, Messrs. Henry R. Towne, president Yale & Town Manufacturing Company; W. A. Marble, vice president R. & G. Corset Co., and W. E. Curtis, formerly Assistant Secretary of the Treasury under Mr. Cleveland.

There was a meeting of the board of directors prior to the annual meeting of the members of the association, at which a number of subjects were considered and acted upon.

The president was authorized to appoint a committee to consider a number of subjects concerning the conditions existing in the city, among which were:

- 1—The question of street railway franchises, and the taxes alleged to be due the city in excess of taxes paid by the corporations enjoying these franchises.
- 2—The question of unused car tracks still remaining in a number of streets.
- 3—The laying of asphalt pavements in the business parts of the city.
- 4—The question of the proposed franchise on Elm street to the Metropolitan Street Railway Company.
- 5—The question of street cleaning and garbage disposal.
- 6—Cab service of the city.
- 7—Loan institutions which advertise to loan money to employees and exact large bonuses for such loans, and a number of other matters of a similar character.

The board, also, as a result of the communication received from George F. Seward, chairman of the Chamber of Commerce committee on state and municipal taxation, reaffirmed their position on this subject, as set forth in the resolution adopted last winter in favor of local option in taxation.

They also passed a resolution endorsing the bill introduced in Congress by Senator Lodge, known as the Lodge bill, providing for a reform in the consular service.

They also passed a resolution on the subject of Chinese exclusion, asking Congress to re-enact the present act on the question of Chinese emigration, so that its life should be coincident with the life of the commercial treaty now in existence between this country and China, which expires in 1904, and advised that the whole question prior to that time be taken up for thorough investigation and action.

They also adopted a resolution endorsing the efforts now being made to grant, by act of the Legislature, to the State Railroad Commission powers to enforce their decisions, in the hope that such powers would prevent discrimination against this city or any other city in the state.

Trade News.

BY UNCLE SAM.

ALABAMA.

FLORENCE—The Wagon Works is enlarging its plant. The handsome brick blocks on Tennessee street are nearing completion. New residences are also being built, five on Alabama street. There are almost no vacant houses here.

HUNTSVILLE—Minchener & Henderson have awarded the contract to a Huntsville firm for the erection of their large two-story oak spoke factory in this city, and work will commence at once. The plant will employ 150 men and will open a large oak timber market in North Alabama and Southern Tennessee. The capital stock of the company is \$150,000.

CALIFORNIA.

SAN JOSE—The old and well known firm of H. Messing & Son has been dissolved. The business of this old established house will hereafter be conducted by Rudolph Messing and F. D. Hatman under the firm name of Messing-Hatman Carriage Company, 190-194 Santa Clara street. They carry a full line of all kinds of vehicles, robes, whips, blankets and horse furnishing goods and are prepared to do all kinds of harness repairing at reasonable prices. They make a specialty of carrying all the latest novelties in their line and are always pleased to show goods.

NEW HAVEN—One of the most enterprising concerns to start in this city is that of Mr. F. J. Bauer, No. 100 and 102 Commerce street. The business is that of manufacturing and dealing in wagons and trucks, and also repairing of all kinds. Mr. Bauer has had a long and practical experience in New York before coming to New Haven. He came here to assume charge of the Smedley Brother's company in that line of work where he was always very successful. He now wishes to have the public call and see one of the finest equipped shops of its kind in the state, and also to have them compare prices and quality of work turned out. F. J. Bauer, 100-102 Commerce street, formerly with Smedley Brothers & Co.

SOUTHINGTON—George L. Messenger, the horse and carriage dealer, through Judge Holcomb, filed a petition in bankruptcy in the United States Court in Hartford this morning. Mr. Messenger's liabilities will aggregate about \$17,000, of which between seven and eight thousand dollars are secured. The assets are about 9,800, largely real estate. It is estimated that the estate will pay from 25 to 30 cents on the dollar.

DELAWARE.

WILMINGTON—The wheelwright shop of ex-Councilman Caleb S. Watson, 2127 Market street, was destroyed by fire early January 20 morning and the two-story frame residence, 2125 Market street, was badly damaged. The loss on the buildings will probably be \$1,000, which is partly covered by insurance. Mr. Watson had \$700 insurance on his tools, machinery and lumber.

GEORGIA.

ATLANTA—One of the largest deals in vehicle circles in years was closed recently when the affairs of the Dickey Carriage Co. passed into the hands of M. L. & N. O. Thrower. An important feature of the deal is that Studebaker Bros., of South Bend, Ind., get a foothold in Atlanta, and have made Thrower Bros. the agents for their vehicles for Atlanta and vicinity. The deal was engineered by F. A. Powell, who will be associated with Thrower Bros., and E. C. Boykin, of Chattanooga, the southern agent for Studebaker Bros.

FORSYTH—Messrs. W. R. Gardner and J. M. Hunt have bought the carriage and buggy plant of E. W. Webb & Bro., and will begin work at once.

FLORIDA.

ELLENTOWN—H. Kinsman has bought the Ellentown Wagon and Repair Shop and has put Mr. C. W. Howard, a professional blacksmith and horseshoer, in charge, and is prepared to do all kinds of wagon, carriage and implement work.

JACKSONVILLE—The J. W. Girvin Carriage Company of 627 West Forsyth street, is the name of a new company just opened up for business in this city for the manufacture and repair of carriages, wagons, carts, drays etc. They carry a full and complete line of carriage supplies, rubber vehicle tires, etc.

W. V. Smith and J. W. Neil, who constitute the firm of Smith & Neil, manufacturers of carriages, wagons, carts, drays, etc., located at the corner of Forsyth and Jefferson streets, are now turning out some splendid work in their line, and they deserve a good patronage from their friends and the public.

ILLINOIS.

CHICAGO—Schuttler & Hotz, Chicago; to manufacture vehicles; capital stock \$500,000. Incorporators—Peter Schuttler, Christoph Hotz, Eugene E. Prussing. The company have purchased from Harold F. McCormick and Mrs. Emmons Blaine sixteen acres of land bounded by 22d and 24th streets and extending from Rockwell street to the Burlington tracks. The frontage of the plot is about 1,300 by 600. A new plant to cost about \$200,000 will be erected there at once.

DANVILLE—The plans for a big addition to the carriage factory of the Force Carriage Company, managed by D. D. Snyder, have

been completed for Charles Palmer. The new addition will be one hundred feet long by ninety-two feet wide and three stories high. This factory is already one of the largest carriage factories of the state and with the new addition will have ample room for the company's growing business. The company has already sold its entire output for next season excepting the number necessary to supply the local trade. The new addition will give room for thirty new buggies a day.

MOLINE—The articles of incorporation of the Velie Carriage Co., of Moline, have been filed for record in Circuit Clerk Gamble's office. The incorporators are John W. Good, Willard L. Velie and Peter C. Simmon. The capital stock of the company is \$125,000 divided into shares of \$100 each. The first board of directors is composed of Willard L. Velie, Charles H. Deere, Charles C. Webber, Charles D. Velie and Stephen H. Velie.

D. M. Sechler Carriage Co. are working on the details of plans for notable additions to their buggy and corn planter factory which will greatly increase its capacity in both departments. These additions will include a six-story factory building, a new blacksmith shop, and new steam plant, and new power equipment. Work is to be started early in the spring and the additions will be completed before the end of the summer. General Manager J. H. Samuels said that the additions which the company is planning are demanded by the great growth of the business, which has now grown out of the present capacity for manufacture. The new building will be 100 x 72 feet and will be five stories and a high basement story, making the full six available for use.

VERMILLION—Harry Huffman has purchased half interest in the Downing & Son firm at Vermillion and the new firm will be styled Downing & Huffman. They will carry a complete line of wagons, buggies, implements, harness, stoves, etc.

INDIANA.

FRANKLIN—S. B. Zink has built an addition to his carriage shop.

KENDALLVILLE—Charles F. Minehart, formerly of Kalamazoo, Mich., has opened up a carriage painting shop on Main street, this city.

TERRE HAUTE—Stout & Pickett, of Paoli, Ind., who do a retail buggy business throughout the state, have purchased the retail department of the Fouts & Hunter Carriage Manufacturing Co. of this city.

DES MOINES—The Bell-Rhines Implement Company will erect a four-story carriage repository and warehouse in this city. Work on the building will be commenced at once and it is to be completed and ready for occupancy by May 1. The building will be 22 by 128 feet and will be built of brick, with stone trimmings. Fancy pressed brick will be used in the front. The first floor will be a modern vestibuled business front, with deep show windows for the display of carriages, harness, etc. Offices will be provided on the first floor and a large portion of it will be given over to a show room for vehicles and stable supplies. The upper floors will be equipped partly for the storage of vehicles, machinery, etc., and partly for display purposes. It is the intention of the company to engage almost entirely in the retail vehicle, stable furnishings and implement business.

SPENCER—Hiser & Dickey formally opened their new carriage emporium in the Smith-Knight opera house block to the public on January 18th. Music was furnished for the occasion by the high school orchestra and a large number of callers inspected the stock during the day. The members of the firm express themselves as being well pleased with the outcome of the event.

HENDRICK—D. J. Van Nostrand is preparing to build an addition to his wagon shop, 22x50 feet, to be used as a buggy repository.

KENTUCKY.

HOPKINSVILLE—W. T. Bonte & Co. are candidates in the field for business in the way of carriages, buggies, etc. They have leased store room No. 3 in the Young & Dryer block, Virginia street, opposite Hotel Latham. Their stock will be complete in everything in their line. Mr. Bonte, the senior member of the firm, is one of the most experienced carriage men in the state.

LOUISIANA.

VINTON—Mr. S. Kaufman will open a wagon, carriage and implement store, where everything that runs on wheels that is suitable for this section will be found. Maxie J. Kaufman will have charge.

MICHIGAN.

FLINT—Durant-Dort Carriage Co. lost \$6,000 worth of unfinished stock by fire on January 18th. It was stored in the old bottling works.

Stewart's carriage factory, No. 1, came near being destroyed on January 21st, as flames were discovered in the engine room. Loss, \$2,000; fully covered by insurance.

DETROIT—The Anderson Carriage Co.'s employes danced and dined on January 24th, to celebrate the opening of the new factory, Milwaukee Junction and Russell street. The building cost \$10,000 and is 150x156 in area. The present capacity is seventy-five completed vehicles per day, and between 300 and 400 persons are employed.

MARYLAND.

BALTIMORE—William B. Boyd, carriage manufacturer, has been granted a discharge in bankruptcy by Judge Morris of the United States District Court.

MASSACHUSETTS.

AMESBURY—Carriage shipments in Amesbury last month show an increase over those of January, 1901. Several of the manufacturers have more orders than in several years past, and the outlook is for an increased business over 1901.

MISSOURI.

HANNIBAL—Work on the big wagon factory of the Beggs-Goodson company is about completed. It is expected that the factory will be in operation within a week or ten days.

IRONTON—The Ironton Wagon Works Company has a large order for folding wagon beds from the Folding Bed Co., of Haverhill, Ohio, to be shipped to different parts of the United States. Manager J. W. Compton says the company's product always gives satisfaction.

ST. LOUIS—William Dischert Carriage Company, of St. Louis; capital \$10,000, all paid. Incorporators, W. Dischert, Herman Dischert, Edward Brendel and John Hoffman.

Fire in the William Schaefer wagon factory, No. 1225 Cass avenue, on January 23rd, caused damage to the amount of \$26,000. The origin of the fire is not known. Flames were first discovered in the paint department on the second floor.

NEW JERSEY.

ANNANDALE—Hummer & Smith is a new firm in the carriage business, succeeding the old firm of Hummer Brothers. Mr. Smith, the new member, who has purchased the interest of the late Elias W. Hummer, was formerly an employee and in charge of the paint department.

BOONTON—Smith Jacobus has purchased the blacksmith and carriage business of William Hodgkins, on Mechanic street.

DOVER—C. T. Clark & Son have added a repository to their wagon shop and will carry a line of vehicles manufactured by well known makes.

GLASBORO—C. H. Carroll is having his carriage trimming shop rebuilt and is erecting a new blacksmith shop on State street.

TRENTON—The capital stock of the Fitzgibbons & Crisp Carriage and Wagon Company of this city, has been absorbed by half a dozen New York and Philadelphia capitalists, who will merge the local concern into an immense corporation, with branches in many of the principal cities of the east. Z. T. Rickards of Philadelphia is now the head of the company, and the other five men are every one practical builders of carriages and wagons. Plants are to be located in Philadelphia, Baltimore and other large cities of the east, but the main headquarters will remain in Trenton. P. J. Fitzgibbon, it is understood, will be the general manager of the company.

The Valentine & Weeden Co. are building quite a few fire department vehicles, which will compare with the very best and at a close price. Police patrol wagons are also a product of these shops. The firm enjoys a reputation for work that brings orders from both Philadelphia and New York City.

NEW YORK.

BROOKLYN—Shadbol's truck and carriage factory, at Cumberland and Flushing avenues, was destroyed by a spectacular fire on February 8th. W. Oscar Shadbol owned the controlling interest in the carriage company, which was one of the best known in the country. Their loss in building and stock will be about \$200,000, supposed to be covered by insurance.

BUFFALO—The Wright Taper Roller Bearing Company, capitalized at \$500,000, was incorporated at Albany yesterday. The company will erect works at Buffalo for the manufacture of taper roller bearings to be applied to automobiles, bicycles, road vehicles, electric and steam railroads and other vehicles. W. Hamilton Wright holds both American and European patents on the bearing. The directors of the company are: Lewis J. Bennett, president Buffalo Cement Company; William B. Rankine, second vice-president and treasurer Niagara Falls Power Company; Eugene A. Georger, president of the German bank; W. Hamilton Wright, Hon. John Laughlin, James P. Wood, Albert G. Thorne, Col. J. H. Horton and Chester G. Smith, all of Buffalo, N. Y., and Col. C. B. Gaskill and William A. Philpott, Jr., of Niagara Falls, N. Y.

COOPERSTOWN—Work has been commenced upon the erection of a wagon factory and repair shops for Charles A. Francis. The main building will be 40x100 feet, two stories high at the street and three stories in the rear. Other small buildings will be erected upon the lot, and when all are completed, Mr. Francis will possess a well equipped plant for the manufacture of wagons, carriages, etc., with which business he has long been identified, and which he now conducts on a smaller scale at his shops at Bowerstown.

CANASTOTA—The Watson Wagon Company has elected officers for the ensuing year as follows: President, C. E. Crouse; vice-president, D. S. Watson; treasurer, J. C. Rasbach; secretary, A. A. Kelser. D. S. Watson is general manager of the company. An annual dividend of eighty per cent. has been declared. The company's affairs are in good condition.

LOCKPORT—I. A. Bronson, the carriage manufacturer at Park avenue and Transit street has disposed of the carriage manufacture and repair department of his business to his son, Sylvester M. Bronson. Mr. Bronson, Jr., is a graduate of the New York Technical School for Carriage Draftsmen, where he took a

course in carriage drafting and mechanics. He entered the employ of Brewster & Co., New York's famous carriage builders, where for a year he was employed as a carriage body builder. Later he was with Quinby & Co., of New Jersey, in their draughting department. This valuable experience makes him eminently fit for the new duties that will devolve on him in connection with the conduct of his business. I. A. Bronson retains that part of the business pertaining to new work and the different grades of factory product.

NEW YORK—Non-Slipping Rubber Tire Company, of New York City, has been incorporated. Capital, \$100,000.

OWEGO—Thomas F. Moore, who, since early in the sixties has run the carriage manufactory on North avenue, has sold his plant, including the buildings and office furniture, to Benjamin F. Birdsall and Christian Sauerbrey, of this village. The property has a frontage of 125 feet on North avenue and the same amount on John street. The consideration was \$3,000. Mr. Sauerbrey has, for several years, been the superintendent of the Champion Wagon Company. Mr. Birdsall, until last May, was the proprietor of the Birdsall House. The new firm will take possession June 1st, and they will put in more machinery and will manufacture wagons and carriages on a large scale.

ONEIDA—Articles of incorporation have been filed with the secretary of state by the Silver Carriage Carriage Company of this city. The directors named for the first year are Herman M. Reynolds, Michael Maher and Merton L. Silver and the company's capital is stated at \$6,000. The company succeeds in business in Cedar street the firm of Schubert & Silver, manufacturers and dealers in wagons and carriages, which was composed by William F. Schubert and Merton L. Silver. It was announced during the week that the co-partnership had been dissolved.

ROCHESTER—A four-story brick building at No. 15 Caledonia avenue, occupied by the Rochester Machine and Screw Company, and the W. H. Hutchison & Co., carriage trimmings, and the Brighton Manufacturing Company, was totally destroyed by fire this evening. The loss is roughly estimated at between \$50,000 and \$60,000, practically covered by insurance.

SAVANNAH—Perry Morgan, one of the most prominent and successful business men of this place, has sold his carriage and harness business to Stevens & Borden of Watertown, possession to be given immediately.

OHIO.

CINCINNATI—Fire started from unknown cause about 10:30 o'clock last night in the drying room of the plant of H. Cook & Co., manufacturers of buggy bodies, at the southeast corner of McLean avenue and Court street. Because of the dangerous locality a "ten-blow" was sounded almost immediately after the first alarm went in from Box 478. The firemen, however, had little trouble in getting the blaze under control, and it was confined to the department in which it originated. The main portion of the plant was not damaged. The loss, it is thought, will not aggregate much over \$1,000.

CLEVELAND—The Forest City Paint and Varnish Company has increased its capital stock from \$60,000 to \$100,000.

DELAWARE—D. T. Williams, who is engaged in the buggy business has changed his location from South Sandusky street to the building formerly occupied by J. M. Ropp, on East Winter street.

IRONTON—The Olive Wagon and Carriage Company has been granted articles of incorporation and is capitalized at \$10,000. This is the company that will assume control of the plant formerly owned and operated by D. B. Gray. The plant will be enlarged and new equipment added. The incorporators are: David Halley, E. E. Wells, D. B. Gray, J. C. Snyder, John McDonald and Roscoe Stewart. A meeting will be held in the near future for the purpose of choosing directors, the election of officers and the transaction of other business.

Sidney—One of the dry houses of the James N. Anderson wheel stock factory was destroyed by fire on February 14th, with its contents, entailing a loss of \$15,000; the insurance amounts to \$8,000. It was only by hard work that the other buildings of the large plant were saved.

SPRINGFIELD—The Grant Axle and Wheel Company were burned out February 10th. The company occupied the central wing, right in the section where the fire originated. Members of the firm estimated last night that the loss is between \$60,000 and \$75,000, and insurance is carried to the amount of \$22,000. The officers of the company are George Marx, vice-president; Edward Harford, secretary; William H. Owen, general manager. The company employs 125 men. It was stated that arrangements will be made to resume work in Springfield as soon as possible.

TOLEDO—The Milburn Wagon Company held its annual meeting and election on January 20th. The only change was the withdrawal of M. I. Wilcox from the directory, he having sold all his stock, and the election of Mr. A. L. Mills as his successor. The old executive officers were re-elected, as follows: President, F. D. Suydam; vice-president, John W. Stoddard, of Dayton; secretary, Horace W. Suydam; treasurer, Edwin Jackson; assistant treasurer, Dwight A. Curtiss; directors, all of the foregoing gentlemen, excepting Messrs. Curtiss and H. W. Suydam, and Messrs. Thomas Van Stone, Herbert Baker, John S. Kinnan and H. R. Kelsey.

PENNSYLVANIA.

EDENBORO—S. D. Hanson, two store rooms and residence, carriage dealer and harness maker, were burned January 22nd. All stock and household goods saved. Loss, \$4,200; insurance, \$2,200.

IRWIN—At the annual meeting of the Parr Wagon Company, J. W. Roadmen, J. C. Altman, J. I. Stewart, of Irwin; I. O. Lowry, Dr. Jamison and J. C. Silsley, of Greensburg and F. J. Wagner, of Harrison City, were elected as board of directors. They organized by electing J. H. Rodman, president; J. C. Altman, vice-president and business manager; J. I. Stewart, secretary, and C. W. Guat, treasurer. The report for the past year was gratifying. The year showed a gain of 10 per cent profit on the capital stock sold.

MILLERSBURG—The twenty-first annual meeting of the stockholders of the Standard Axle Works was held in the directors' room of the First National bank on Monday afternoon and elected the following board of directors: A. Douden, J. B. Whitney, W. B. Meetch, L. E. Bowman, A. Fortenbaugh, Benjamin Bowman, and William Plambeck. The board organized subsequently by electing A. Douden, president; L. E. Bowman, treasurer; W. B. Meetch, general manager, and Addison J. Haverstick, secretary. Nothing was done at the meeting looking toward starting the business again or as to what disposition to make of the plant.

OXFORD—The Johnson Carriage Company, Oxford, will, as soon as the weather opens, enlarge their plant. The old smith-shop will be razed and a new addition go up. It will be 20x37 feet, three stories, and be used for smithing, paint and varnish rooms. Harry Little, West Grove, contractor.

PHILADELPHIA—Jacob Rech & Sons, coach builders, Eighth and Girard streets, have remodeled and enlarged their show room and office.

WAYNESBURG—J. L. Iams has purchased the half interest of Hon. Mathias Brant in the old carriage factory on Greene street. Consideration, \$3,000.

NEBRASKA.

OMAHA—A. J. Simpson & Son Company, for the manufacture and sale of vehicles; capital stock \$100,000; incorporators, Andrew J. Simpson, Frank C. Simpson and K. G. Crozer.

RHODE ISLAND.

NARRAGANSETT—William Sluman is having a two-story addition built to his carriage shop on the Kingstown road.

WYOMING—The carriage shop of Niles Bros. was totally destroyed by fire on January 10th. The loss was in the neighborhood of \$1,500 and was not covered by insurance. It may have been the work of an incendiary, although the firm have no reason to suspect any one of the crime. The wood working shop, which was burned, was about fifty feet from the blacksmith shop, and by strenuous effort the latter and its contents were saved.

TEXAS.

HOUSTON—Mr. W. C. Perry of the Perry Buggy Company, corner Fannin and Capitol, has closed a deal for the entire stock of James McAughan & Co., which has been located on Travis street, between Commerce and Franklin. The stock embraces sixty vehicles. It will be continued with the stock of the Perry Buggy Company. In addition to this enlargement Mr. Perry stated this morning that the firm will also add a line of rice implements, and will again engage in the sale of wagons.

CORSICANA—G. H. Butler's carriage and buggy store. The fire lasted about forty minutes and did about \$8,000 worth of damage in that forty minutes. Mr. Butler says that his stock invoiced \$9,000 and that he thinks it is damaged at least two-thirds. This places the damage at \$6,000. It is estimated that the building is damaged about \$1,000.

VIRGINIA.

RICHMOND—The Ainslie Carriage Company was chartered in the Law and Equity Court yesterday afternoon, with a capital stock of from \$50,000 to \$100,000, with the following officers: President, D. A. Ainslie; vice-president and treasurer, Reuben Lurton; secretary, Austin Brockenbrough.

Wants.

Help and situation wanted advertisements, one cent a word; all other advertisements in this department, 5 cents a word. Initials and figures count as words. Minimum price, 30 cents for each advertisement.

SITUATIONS WANTED.

Situation wanted as trimmer foreman by a capable and up-to-date hustler. Best reference as to character and ability. "W. H.," 743 West Sixth street, Cincinnati, O.

Wanted—A position as body finisher in a first class shop; also stripper and all round painter. Would be willing to take charge. Have had considerable experience in fine custom repair work. In last job eleven years. Can furnish best reference. Address "W. G. A.," Box A 98, care THE HUB.

Wanted—A position by an experienced carriage painter as foreman or journeyman. Sober and industrious. Address "R. K.," Box A103, care THE HUB.

Wanted—A situation as superintendent or assistant by first-class all around carriage man and practical draftsman. Address Box "A82," care THE HUB.

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Manufacturers of carriages, wagons, harness, or the accessory lines, who are in need of salesmen, and who want to engage high class men able to sell goods, should write at once to L. H. Kronfeld, secretary of the Carriage Harness and Accessory Traveling Salesmen's Association, Mt. Vernon, N. Y.

HELP WANTED.

Wanted—EXPERIENCED TRAVELING SALESMEN to look after old and secure new vehicle tire business. Must be practical carriage man, well-known to the leading carriage manufacturers and trade and capable of influencing this class of business. Give full particulars. "SEMI-PNEUMATIC," P. O. Box, New York City.

Wanted—Salesman on salary or commission to represent us in the state of Iowa. Answer, giving references, to F. A. AMES & CO., Owensboro, Ky.

Wanted—A good designer for automobile carriage bodies. Apply to "A. Co.," P. O. Box 52, New York.

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Wanted—Experienced foreman for paint department of buggy factory, capacity eight to ten thousand jobs. Man thirty to forty years preferred. Must be thoroughly familiar with painting, and capable of handling men. References required. Address "R. F.," Box A88, care THE HUB.

Wanted—An experienced body finisher. Address "R. F.," Box A89, care THE HUB.

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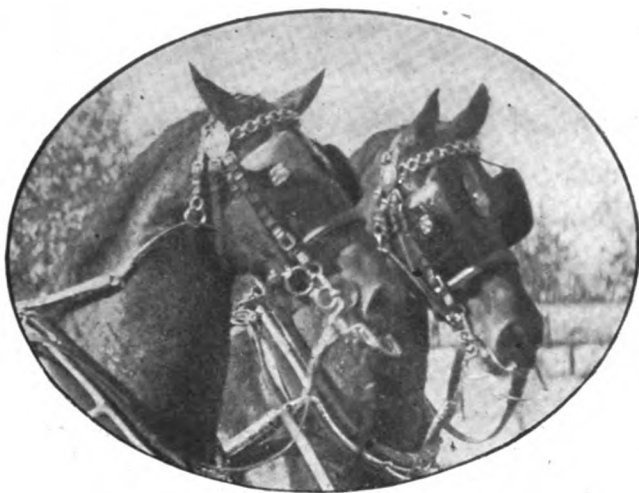
That wonderful race of Florentine artists, of the fifteenth and sixteenth centuries, knew how to realize the ideal. They were not satisfied with things that “would do,” or that were “good enough:” they did not pause till they attained perfection. Their buildings and statues and paintings were faultless. It was the spirit of the age to annihilate error and show that man's work could be as absolute as nature's. There have been but few such eras. In Rome, the first century, were a power of thought and a splendor of life that reached humanity's high tide. In Athens, fourth century B. C., were “a company of the aspiring” who spake and wrote and carved and builded without fault. In London, of Shakespeare's day, was a literary perfection. To believe that the ideal can be realized is the faith that makes civilization.

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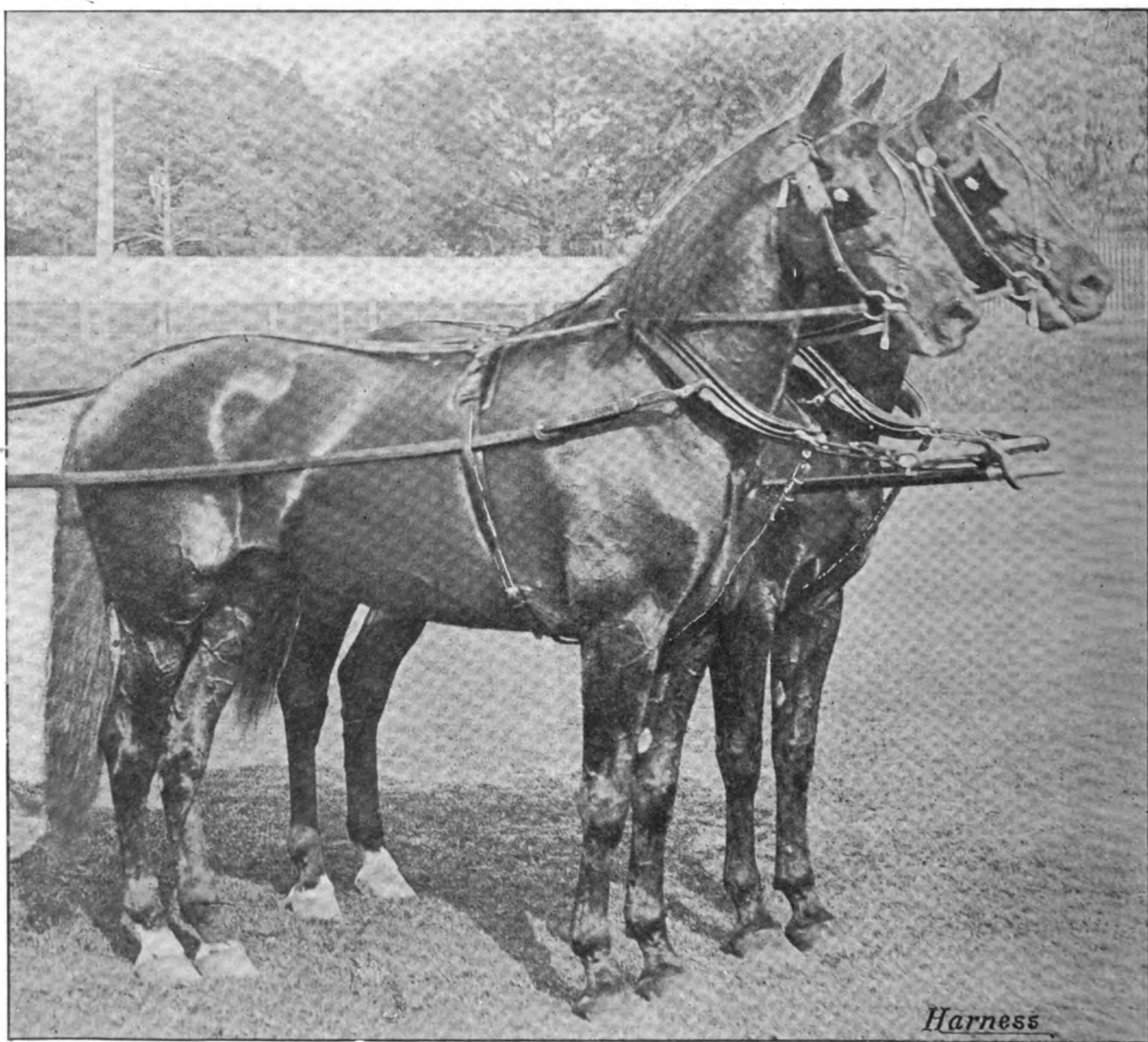
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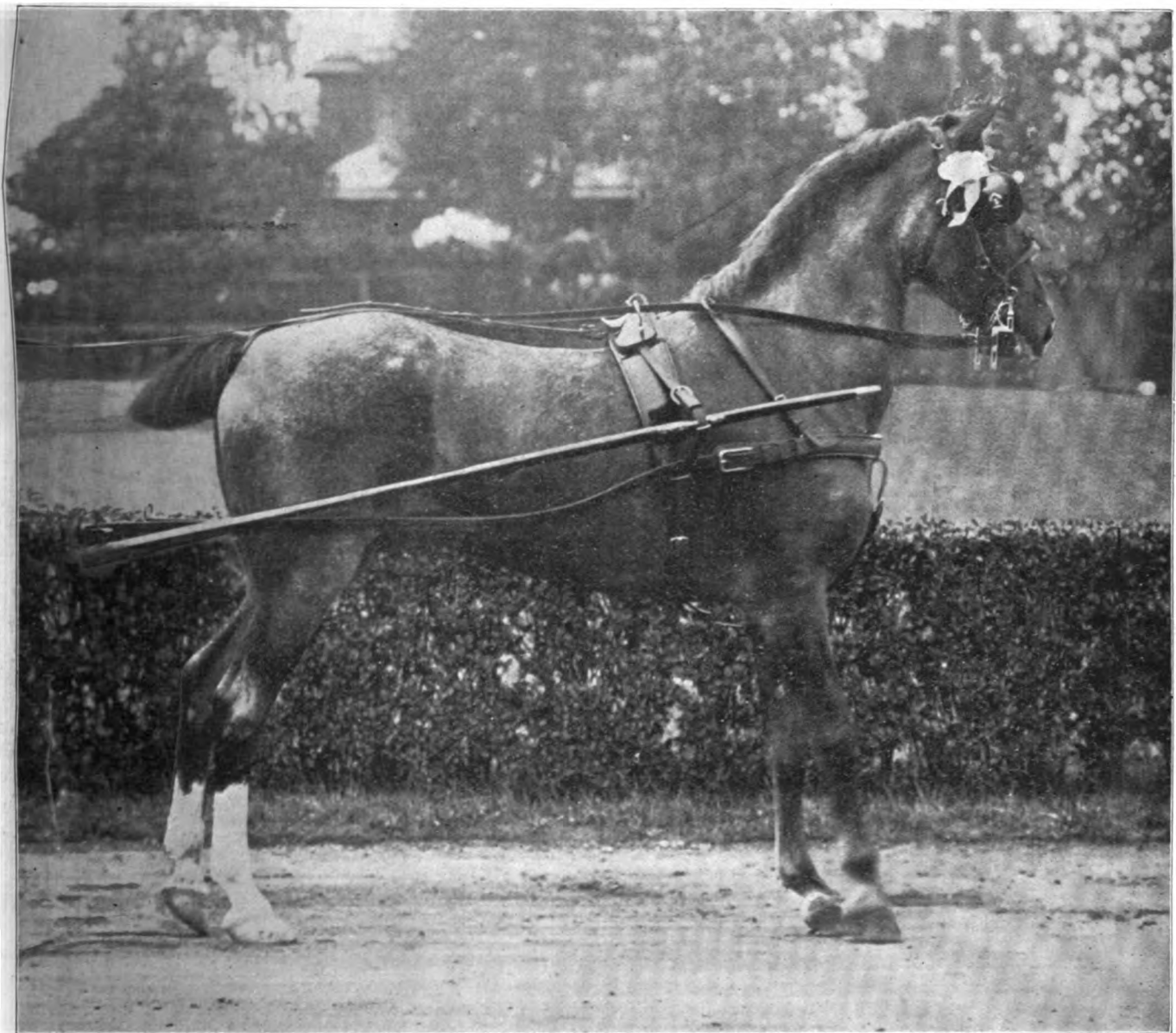


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- Harmony of Colors in Lettering.
- Lettering on Glass.
- Tools, etc., Required by Letterers.
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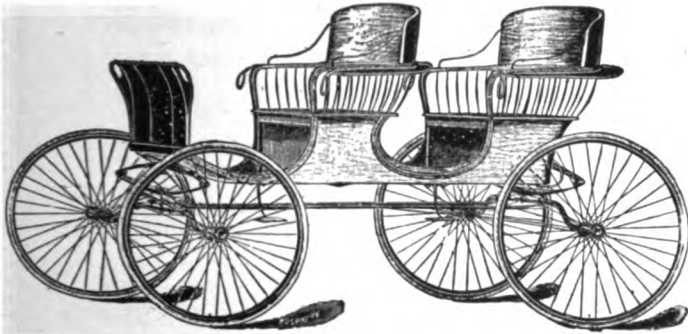
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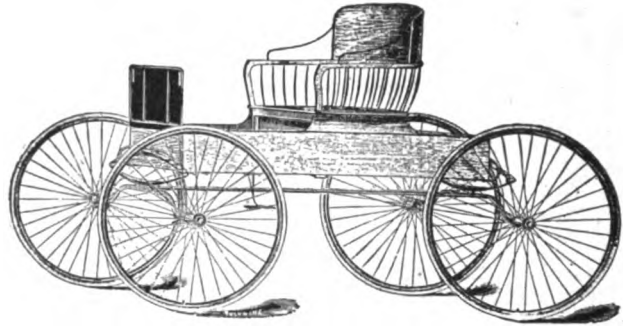
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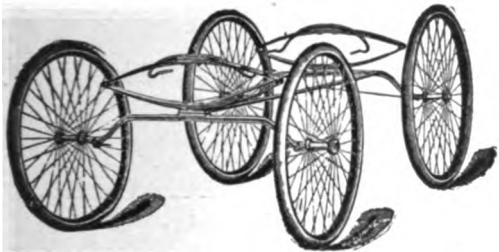
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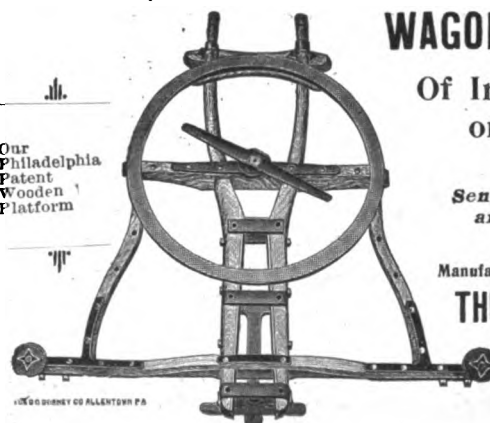
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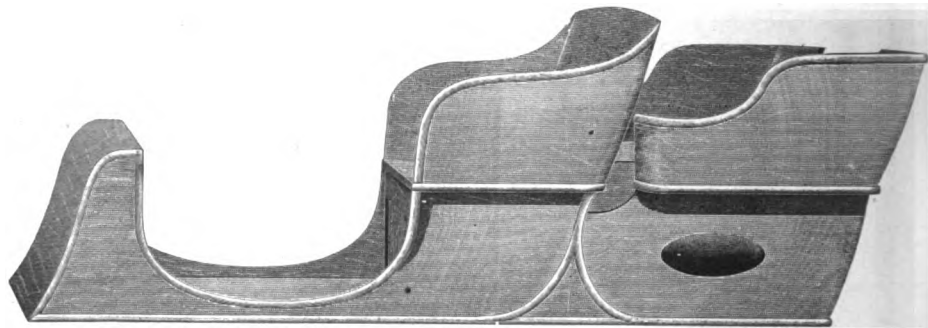
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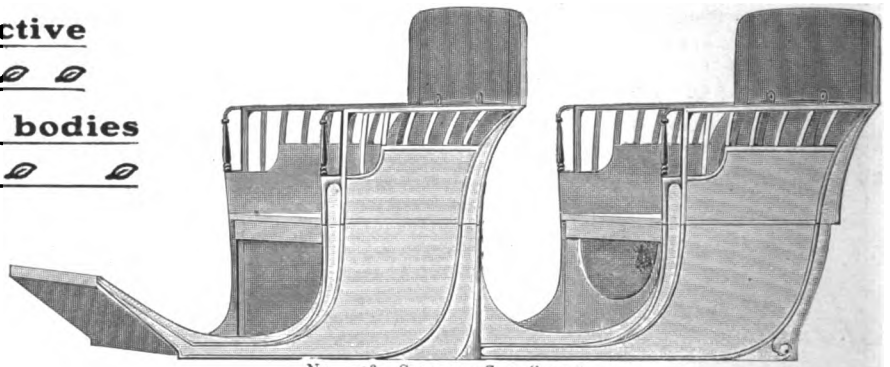
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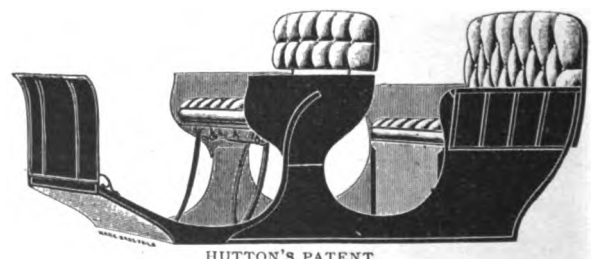
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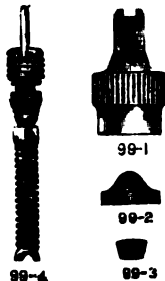
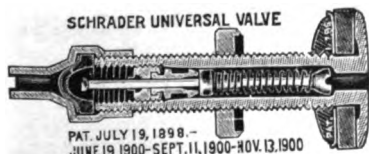
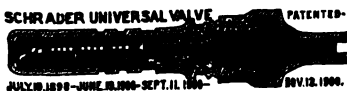
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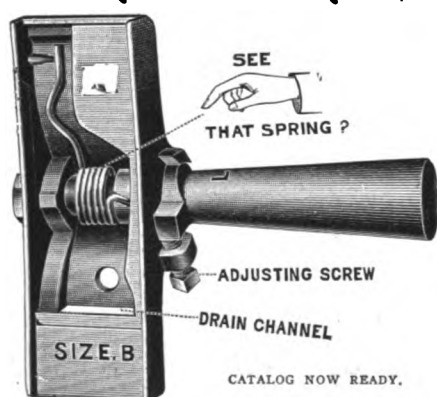
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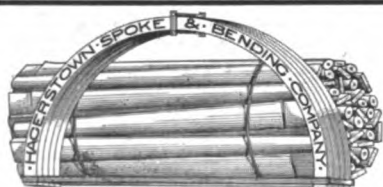
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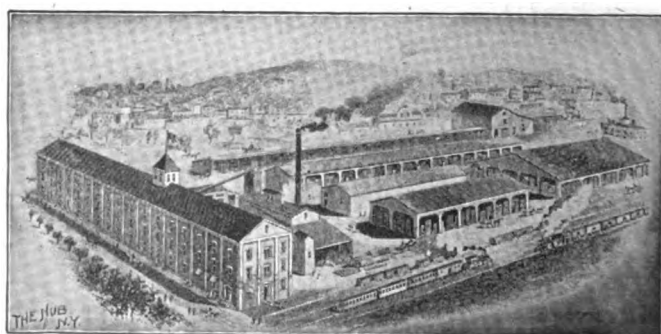
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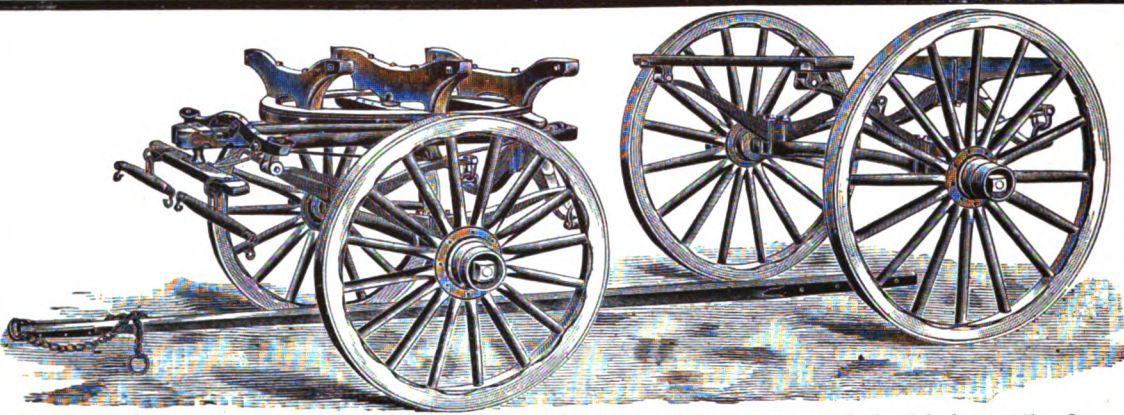
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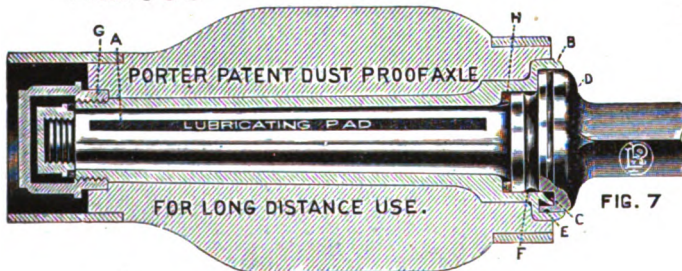
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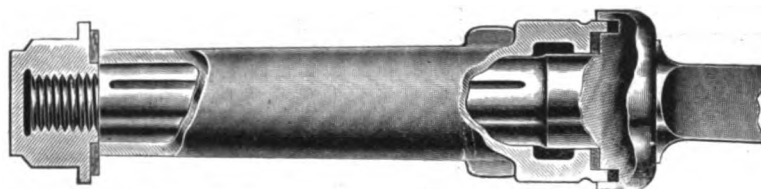
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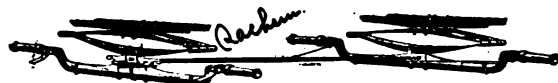
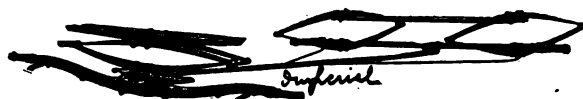
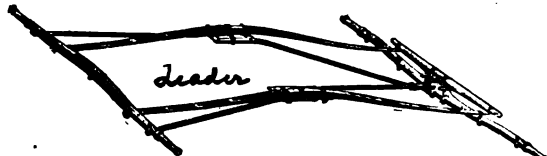
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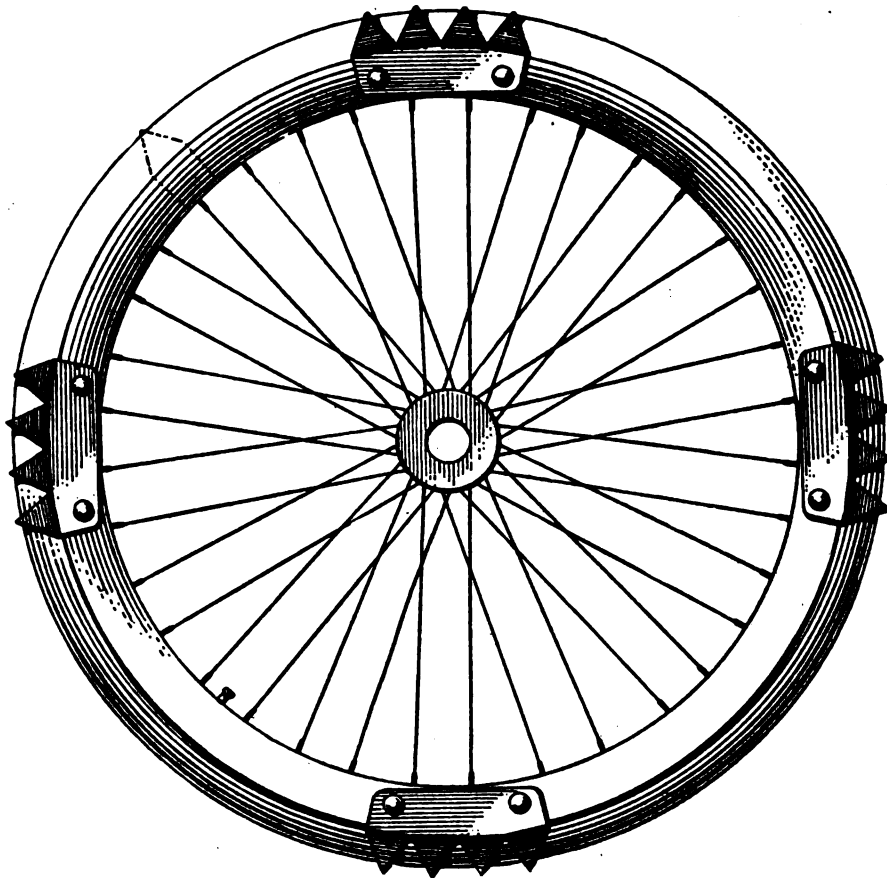
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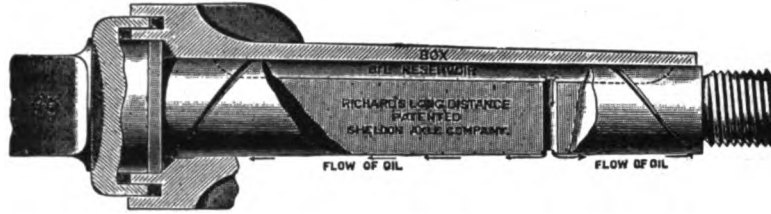
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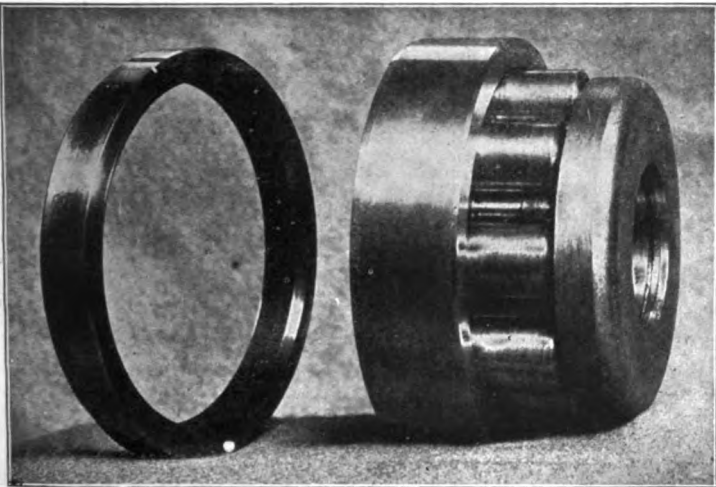
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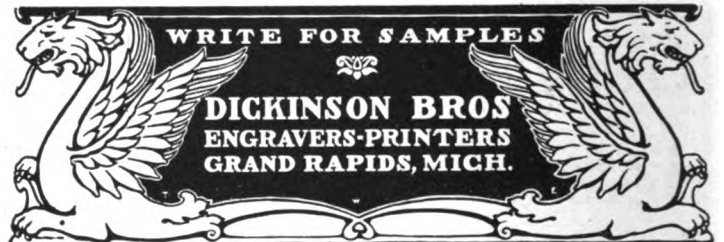
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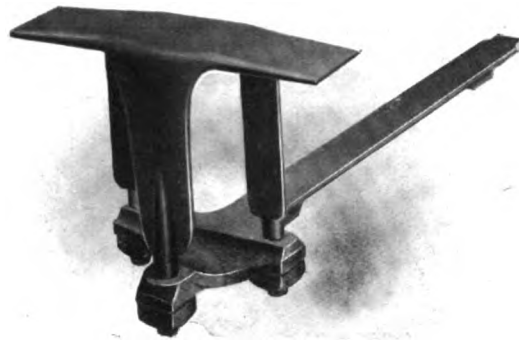
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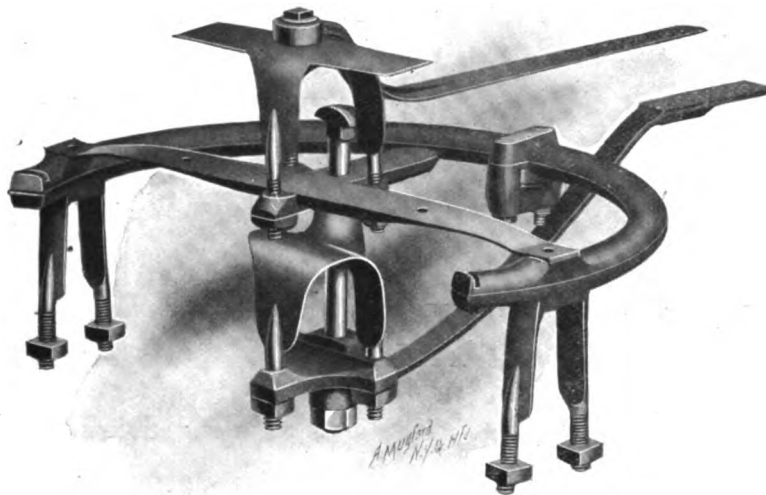
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and
Surreys.**



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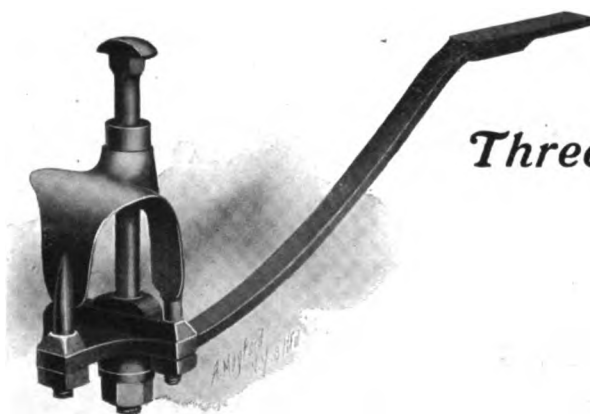
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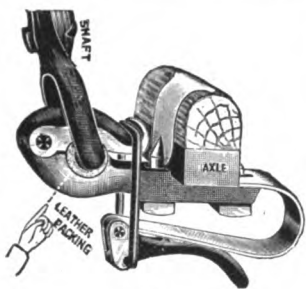
10.....	$\frac{5}{8}$ X 1
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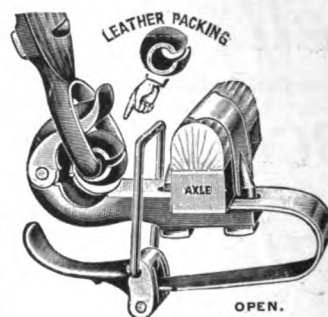
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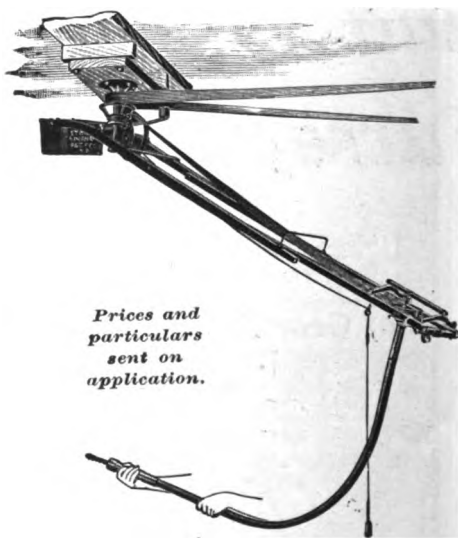


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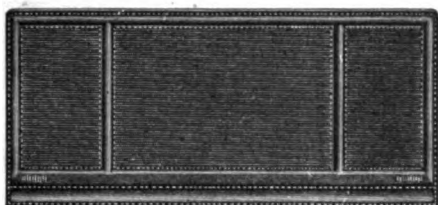
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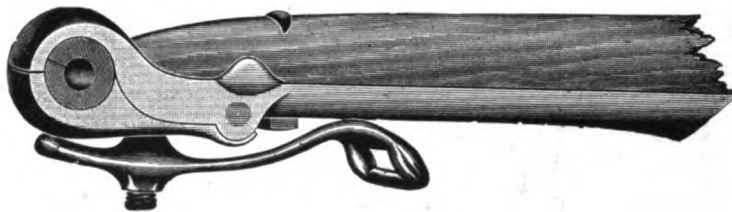
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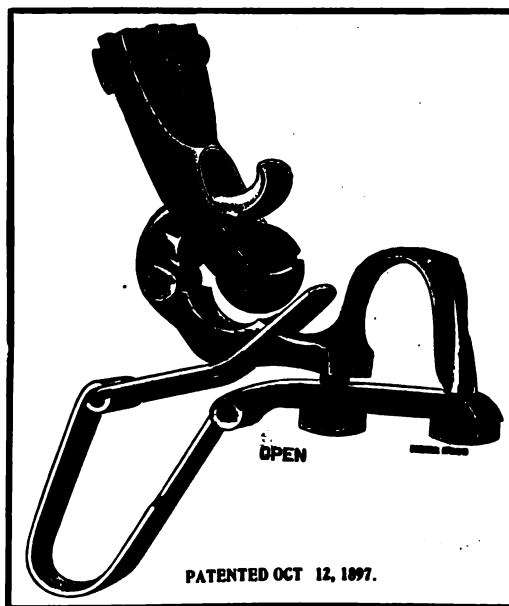
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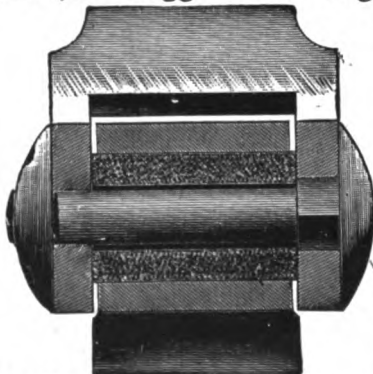
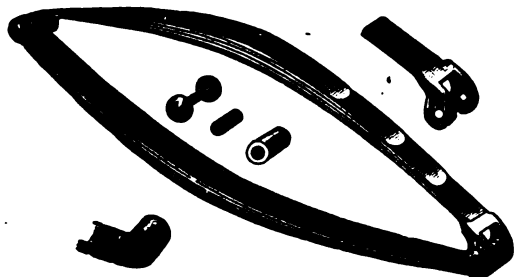
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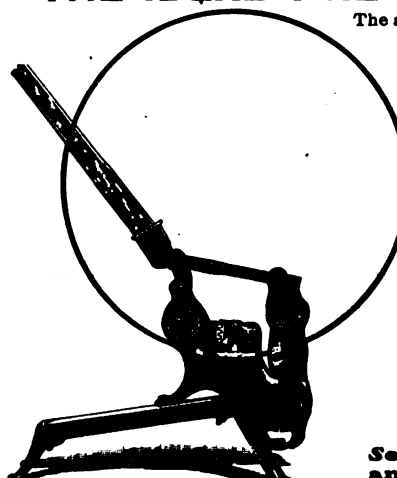
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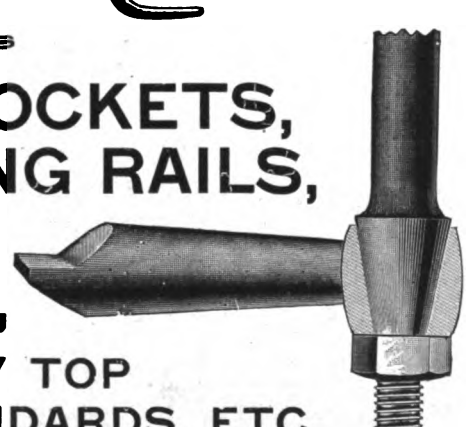
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Every Yoke is Tested and Every Centre is made of Oak Tanned Harness Leather.

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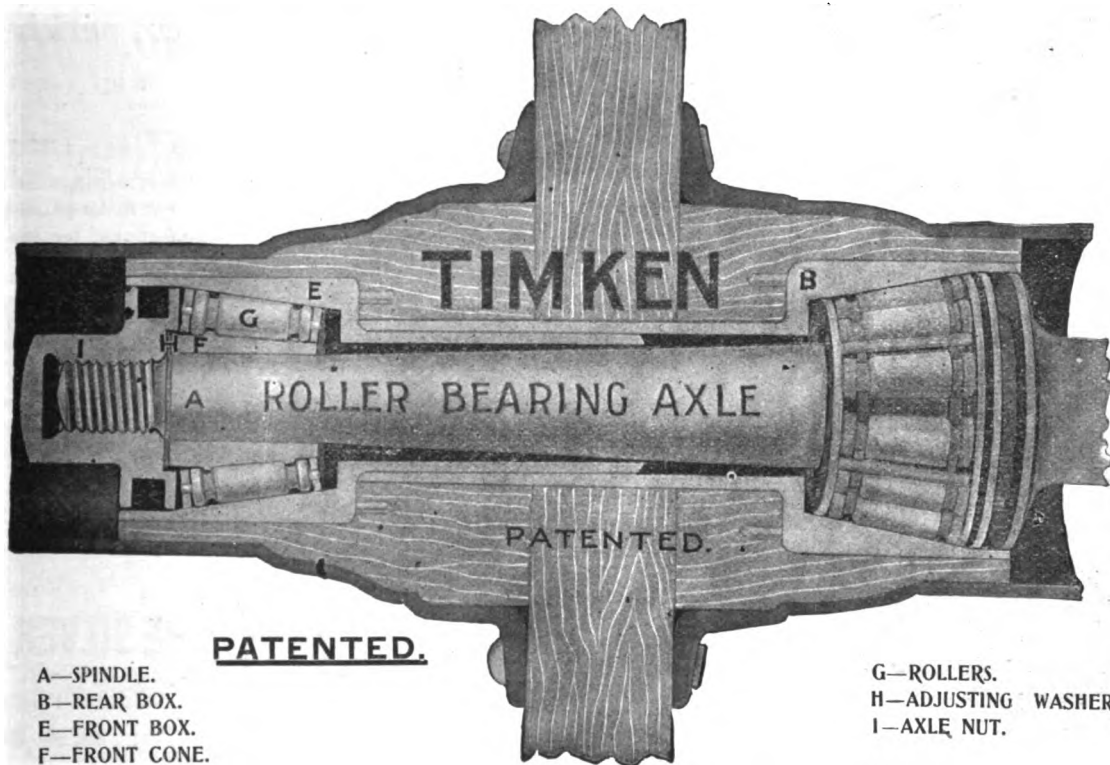
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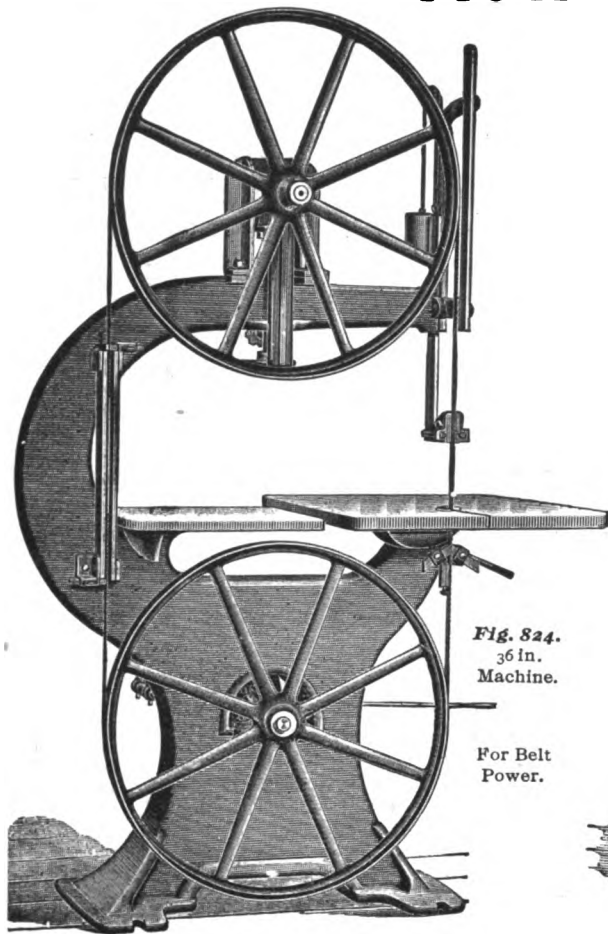


Fig. 824.
36 in.
Machine.

For Belt
Power.

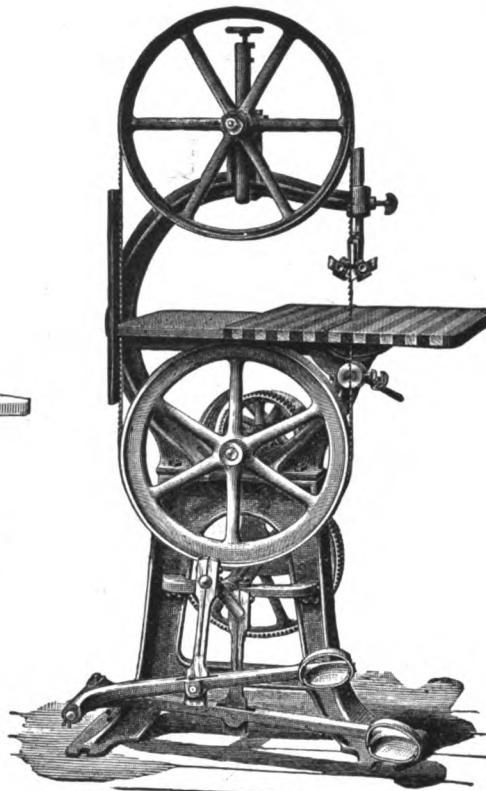


Fig. 721.

30 in. Machine. Combined Foot or Belt Power.

IN SIZES:

20 in. machine for foot or belt power.
26 in. machine for foot or belt power.
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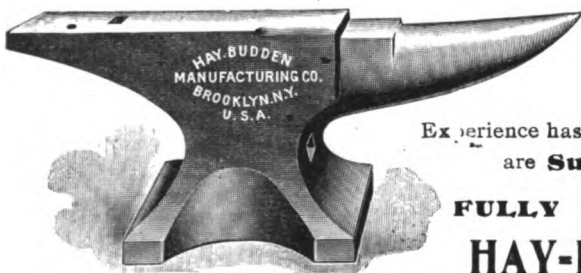
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FORGED BY Best AMERICAN Workmen.

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Experience has proven their worth and demonstrated that the **Hay-Budden Anvils** are **Superior in Quality, Form and Finish** to any on the market.

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Shows WONDERFUL RESULTS.

It is the greatest **MONEY MAKER** ever offered vehicle repairers.



**WOULD NOT TAKE \$500.00 AND
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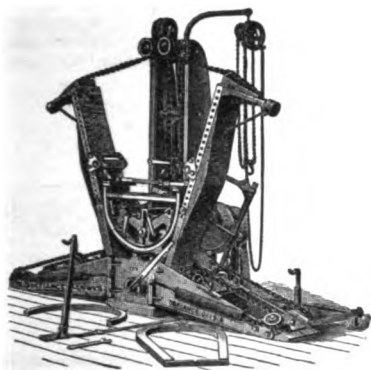
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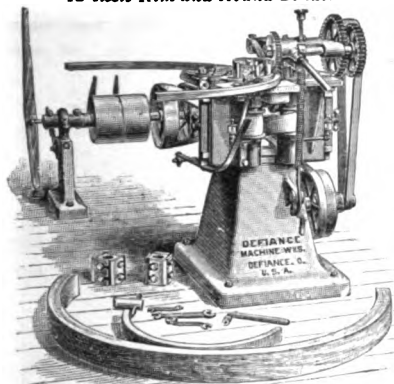
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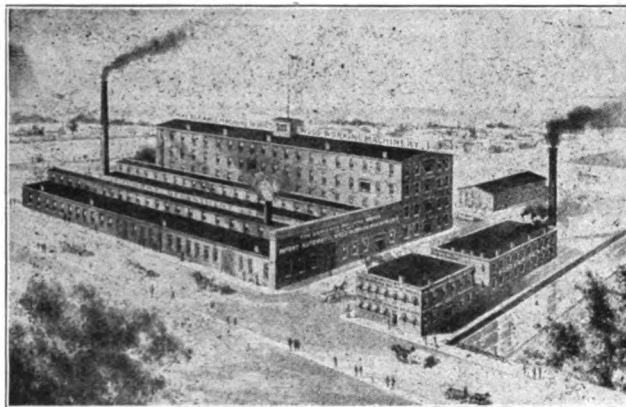


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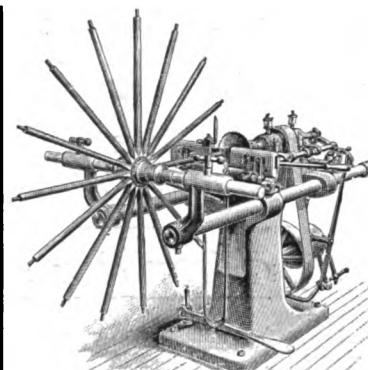


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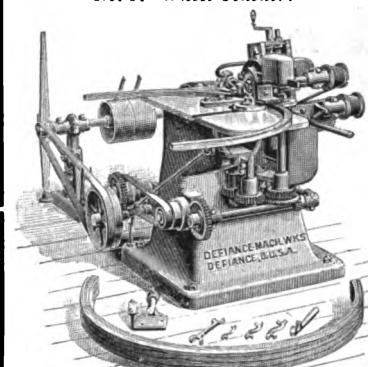
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FOR MAKING
LIGHT AND HEAVY WHEELS



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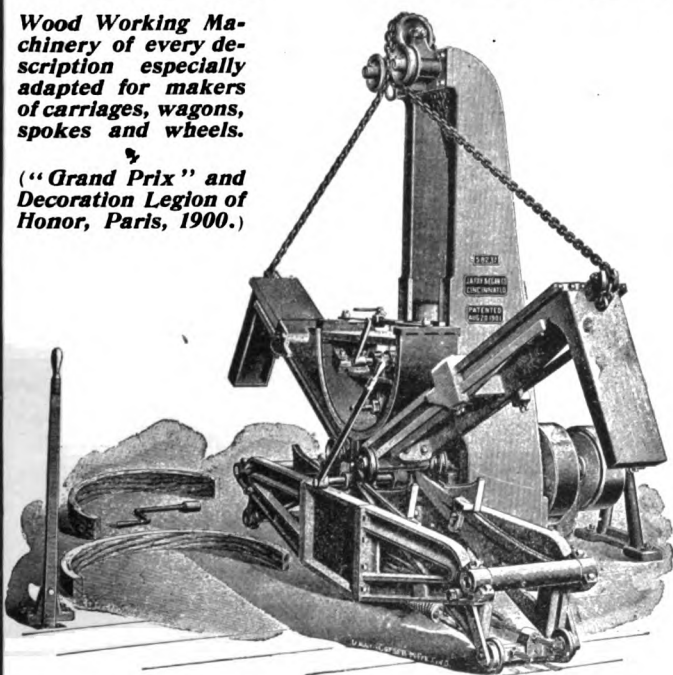
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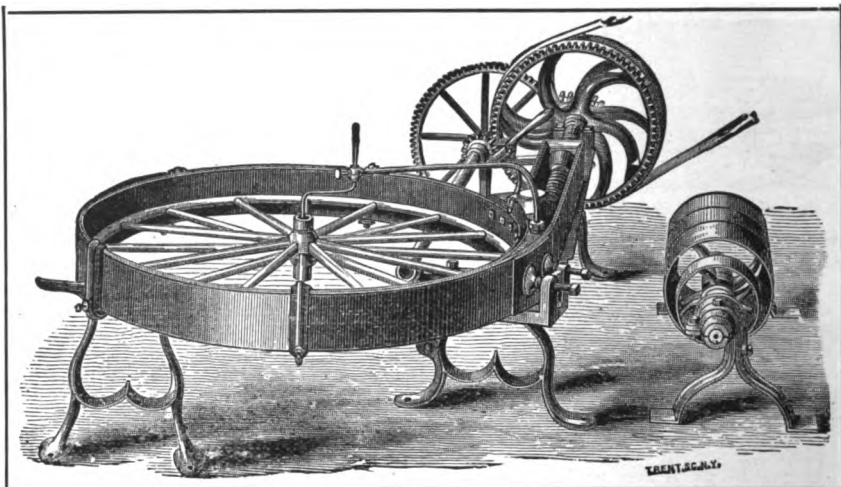
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In every case where our tire setters have been used to set channel tires they have demonstrated that they will not only do that work, but will do it

**Better than any
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Let no one be misled by any statements to the contrary. The dies used for regular flat tires will do ordinary channels without any special equipment.



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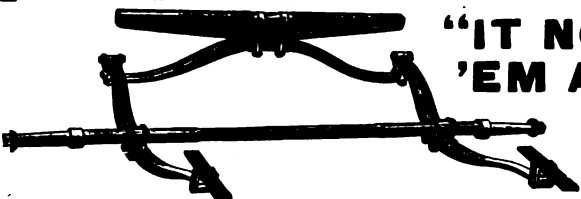
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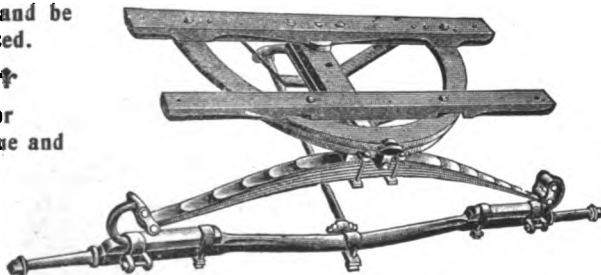
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Manufactured in one grade only—

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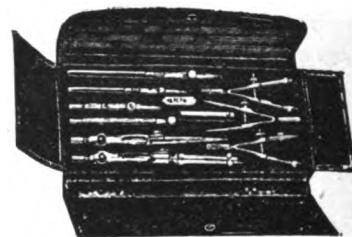
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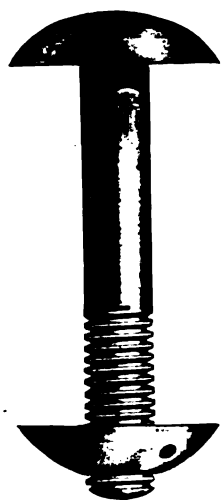
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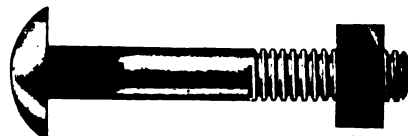
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OF EVERY DESCRIPTION.

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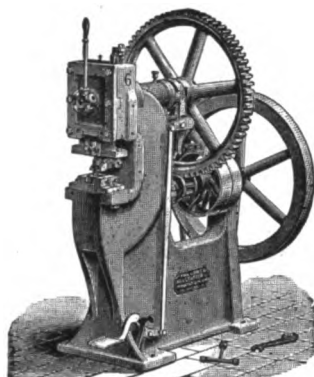
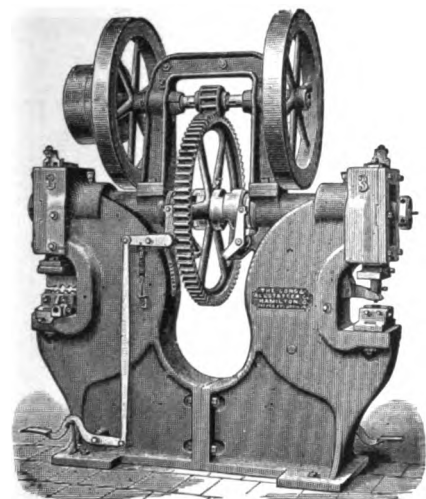
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....FOR....

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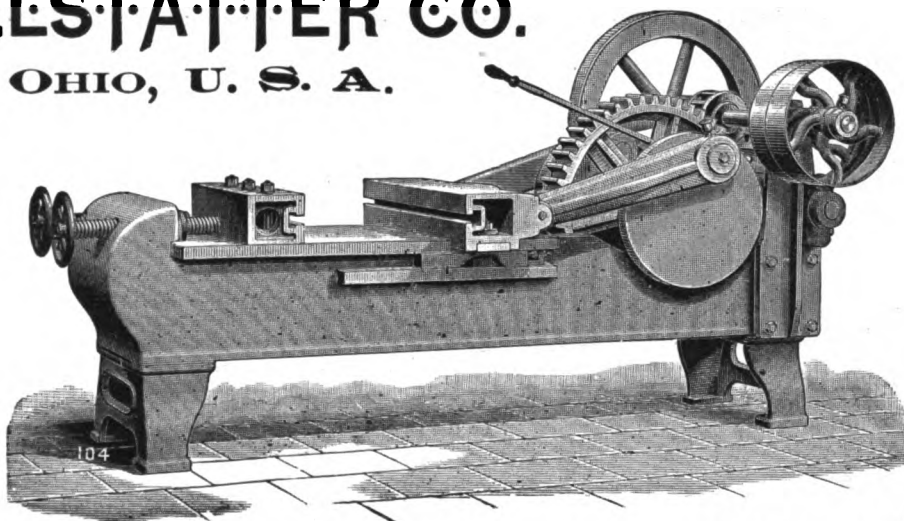
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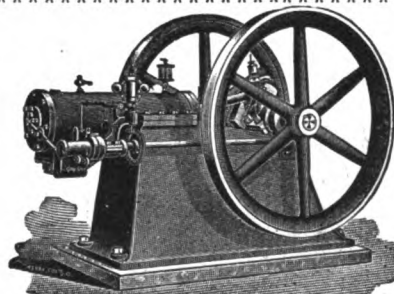


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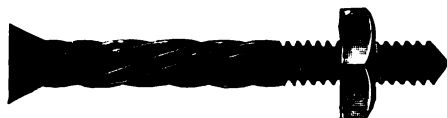


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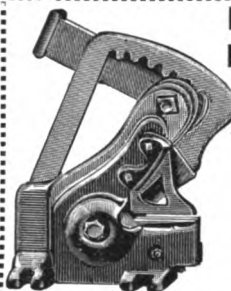
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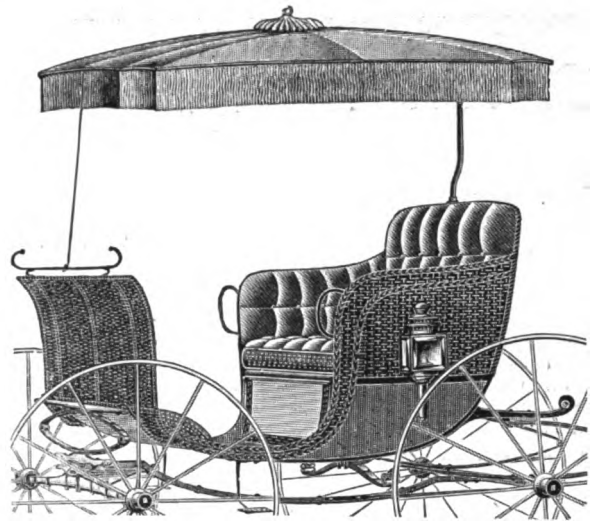
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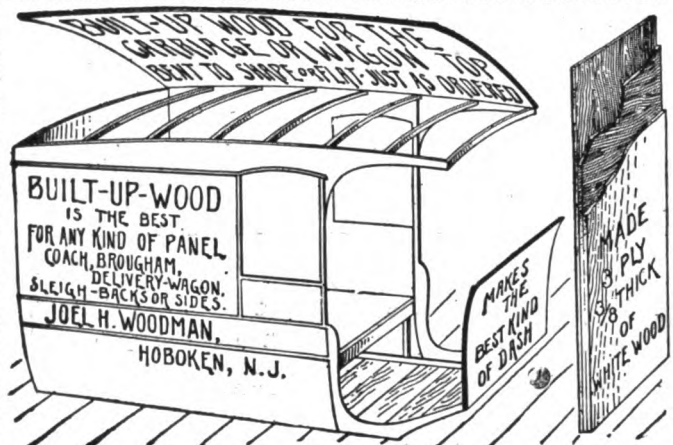
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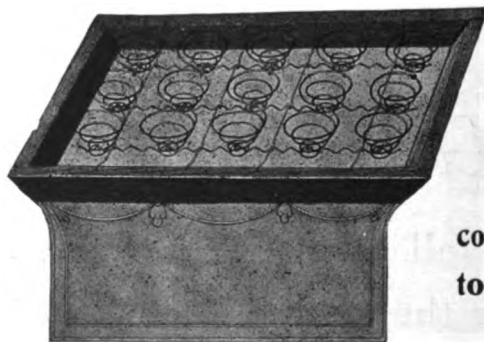
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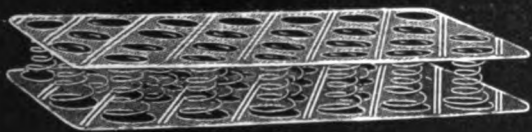
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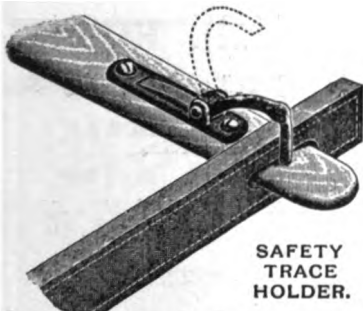
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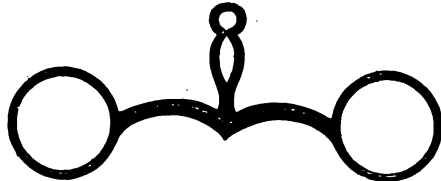
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Your horse will never become detached when using this Safety Trace Holder. It is the best Trace Holder on earth. Price, per dozen pairs, Japan finish, with screws to put them on, only \$1.

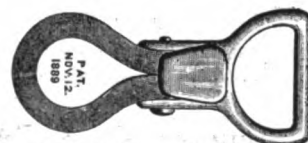


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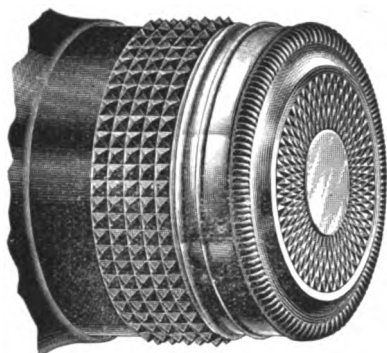
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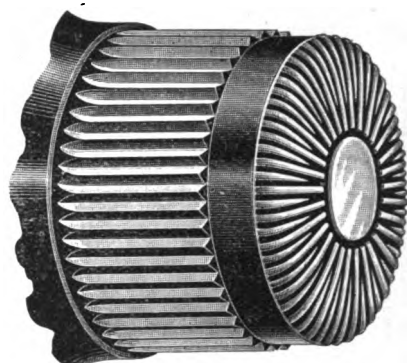
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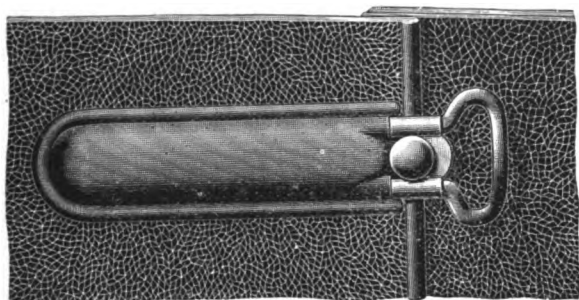
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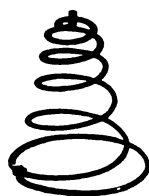
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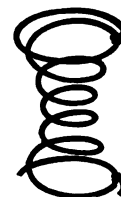
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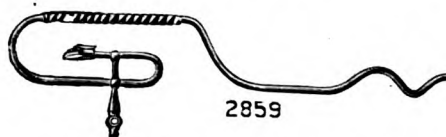
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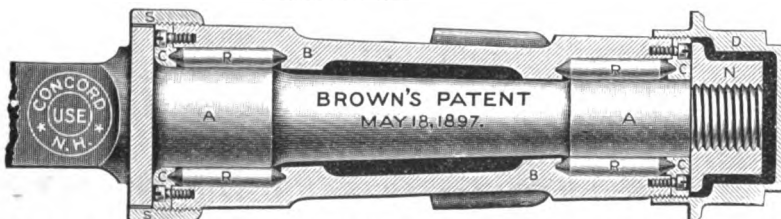
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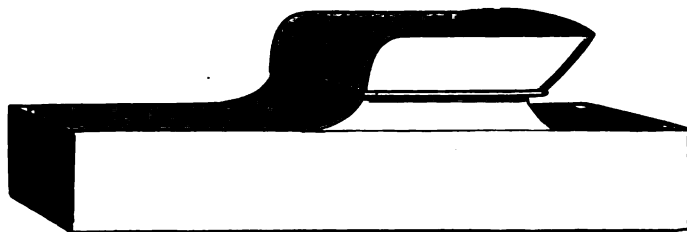
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Buffalo Portable Forge.

Buffalo Blacksmith Tools

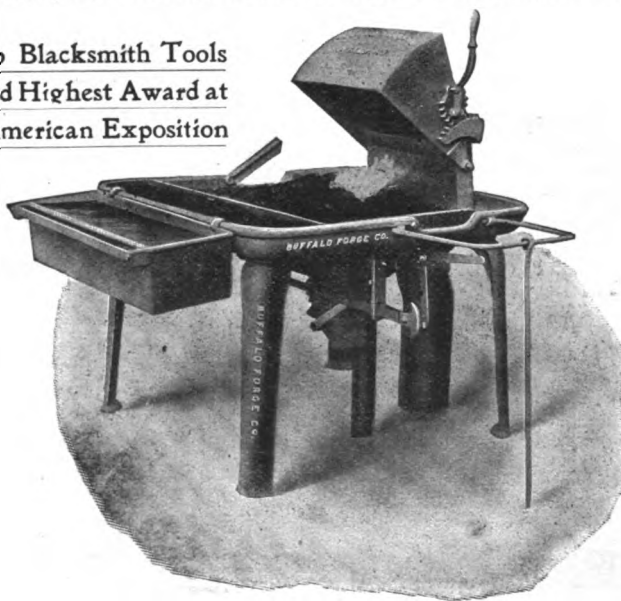
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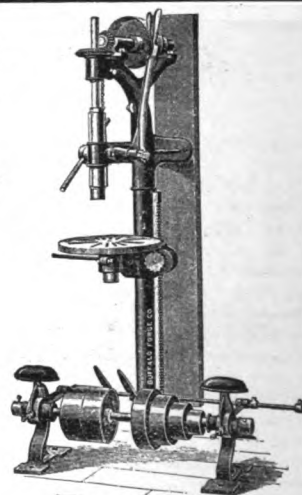
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AS MANUFACTURED AND SOLD BY

W. E. DERBY & CO.

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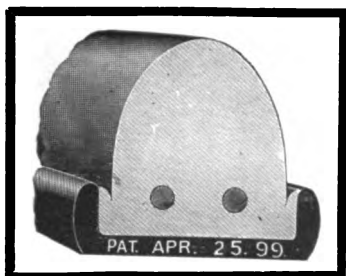
In Whipcords, a fabric thoroughly fulled, made wide in the loom, is an article that stays in shape when trimmed and in use. Many whipcords of good appearance are not made in this way.

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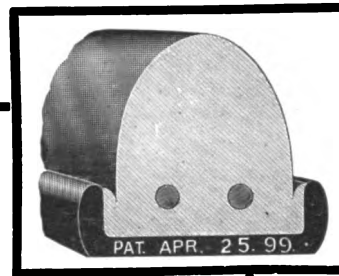
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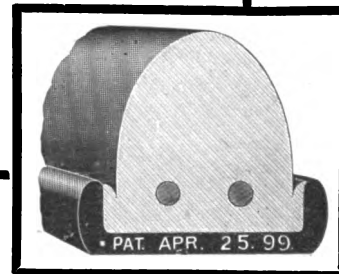
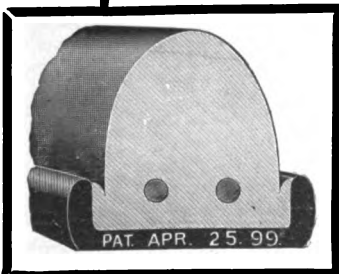
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McKinnon Dashes and Fenders

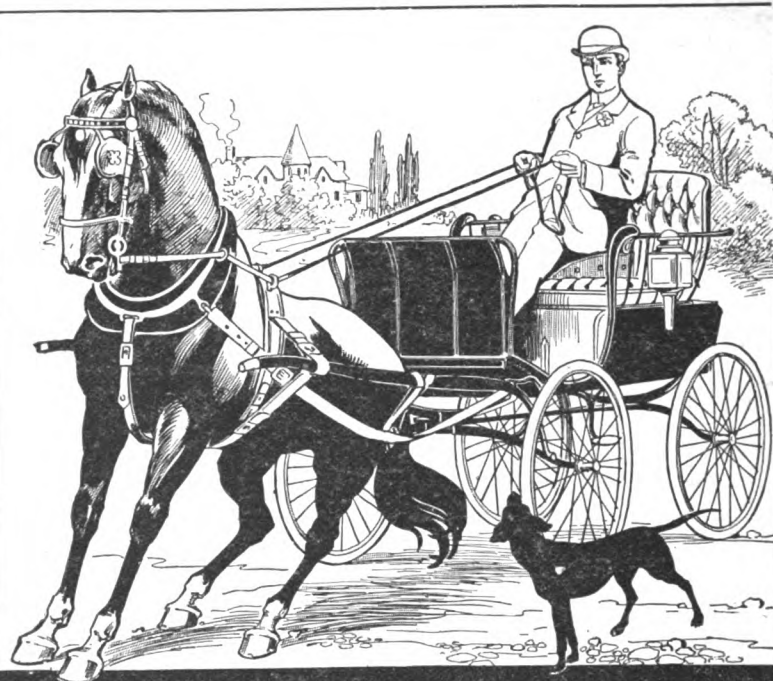
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